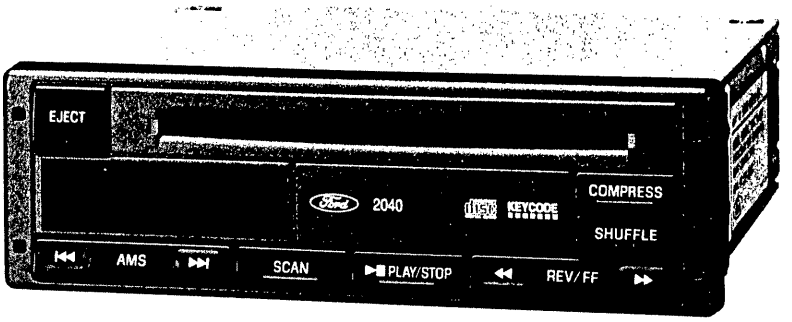
93AB-19B160

SERVICE MANUAL

AEP Model



FORD-car model

Version: -AE

Model Name Using Similar Mechanism	NEW
CD Player Mechanism Type	MG-300F-B

SPECIFICATIONS

System	Compact disc digital audio system
Disc	Compact disc
Laser	Semiconductor laser (λ = 780nm)
Spindle speed	200 r.p.m. to 500 r.p.m. (CLV)
Error correction	Sony Super Strategy Cross Interleave Read Solomon Code
Number of channels	2
D-A conversion	1-bit
Frequency response	20 to 20,000Hz $^{+1.0}_{-1.5}$dB
Harmonic distortion	0.02% (1kHz)
Dynamic range	85dB
Signal to noise ratio	85dB
Channel separation	70dB
Wow and flutter	Below measurable limit
Outputs	Ford Signal Connector

Disc

Track pitch	1.6μm
Sampling frequency	44.1kHz
Quantization	16 bit linear quantizing/channel
Modulation system	EFM
Transfer rate	2.03Mbit/sec. (before modulation)

General

Power requirements	12V dc car battery (negative ground)
Current drain	500mA (playback) 1.5A (during disc loading or eject)
Operating temperature	-20°C to +50°C (-4°F to +120°F)
Dimensions	Approx. 188 x 59 x 160.6mm (w/h/d) (7-1/2 x 2-7/20 x 6-2/5 in.) including projecting parts and controls
Weight	Approx. 1.4kg (3lb), net

COMPACT DISC PLAYER

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SERVICING NOTE

Flexible Circuit Board Repairing

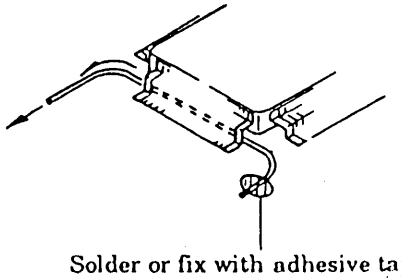
- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

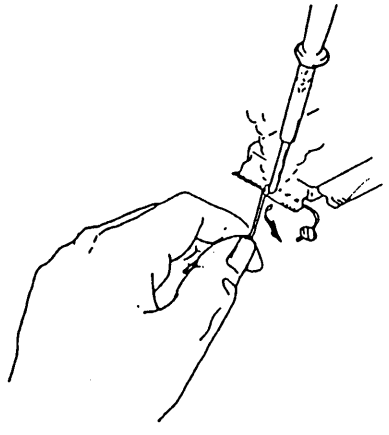
Removing the Flat Package IC

1. Prepare an enameled wire (0.3mm diameter) and apply it to the back side of the IC pins as illustrated below.



Solder or fix with adhesive tape.

2. Heat the IC pin with the soldering iron and draw the enameled wire so that the IC pin is removed from the pattern as illustrated.



Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 mm
- Emission Duration: continuous
- Laser Output Power: less than 44.6 μW*

  * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

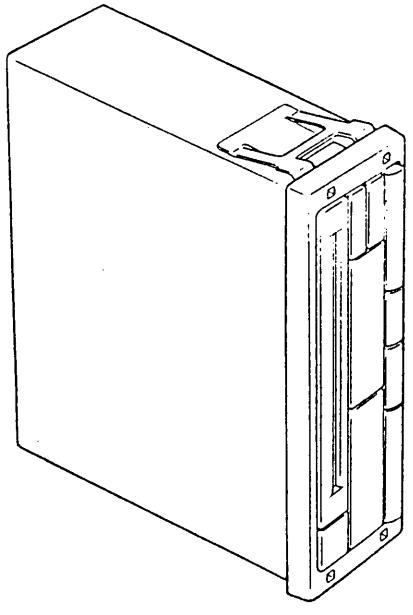
During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

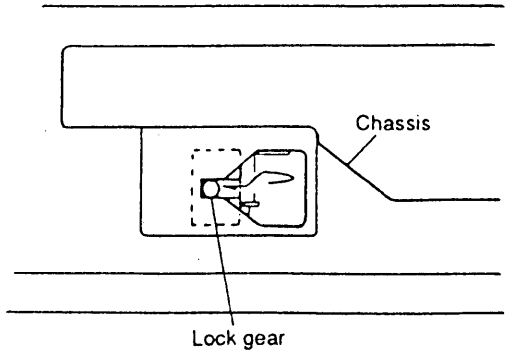
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

Cautions for Repair

- Never reverse the set when inserting or removing the disc.
  When checking the boards, put the set as illustrated below.



- In play mode, the disc section is connected to the chassis section only through the damper so that it is not affected by vibration.
  The lock gear is fixed in the notch of the chassis only in EJECT mode.
  If the lock gear is not firmly fixed in the notch, the disc cannot be removed or inserted. In such a case, rotate the gear near the sled motor by your fingers to fix the lock gear in the notch.

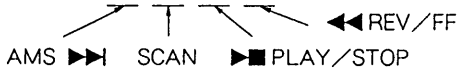


– Note on Repairing –

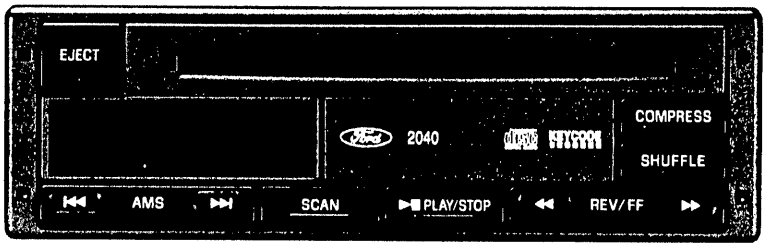
IC701 Replacement

4 digits code number (Security code) is written in the factory set IC usually.
This repair IC (8-759-070-64 : CXK1024M-ME) is initialized, but the security code is not written.
Therefore, it is needed to write the security code in to the IC.

1. Supply power to the set.
2. Empty the set of its disc.
3. Press both [COMPRESS] and [SHUFFLE] buttons at the same time for 2 to 3 seconds.
4. "– – – –" is appeared on the display window.

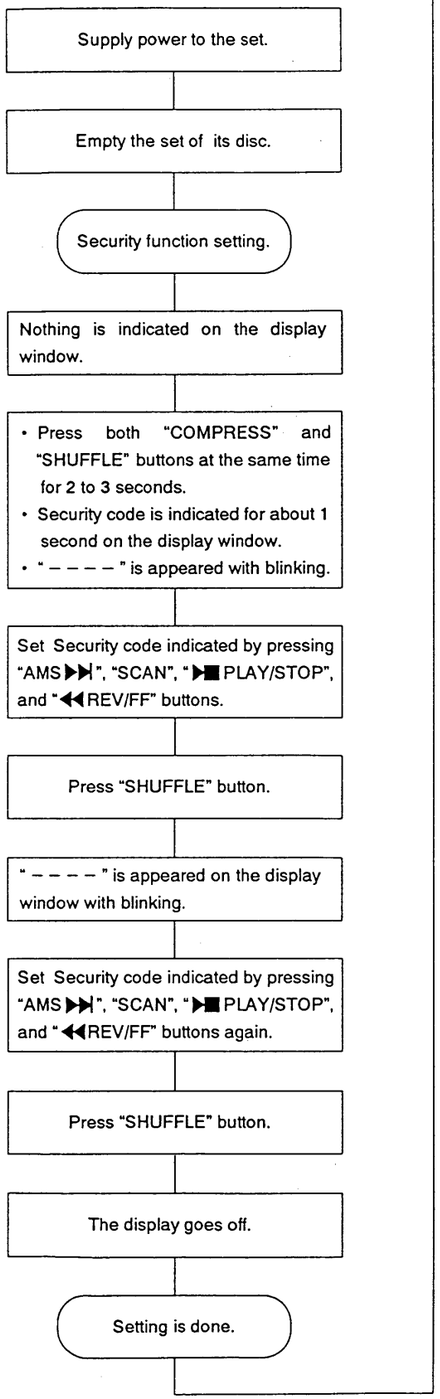


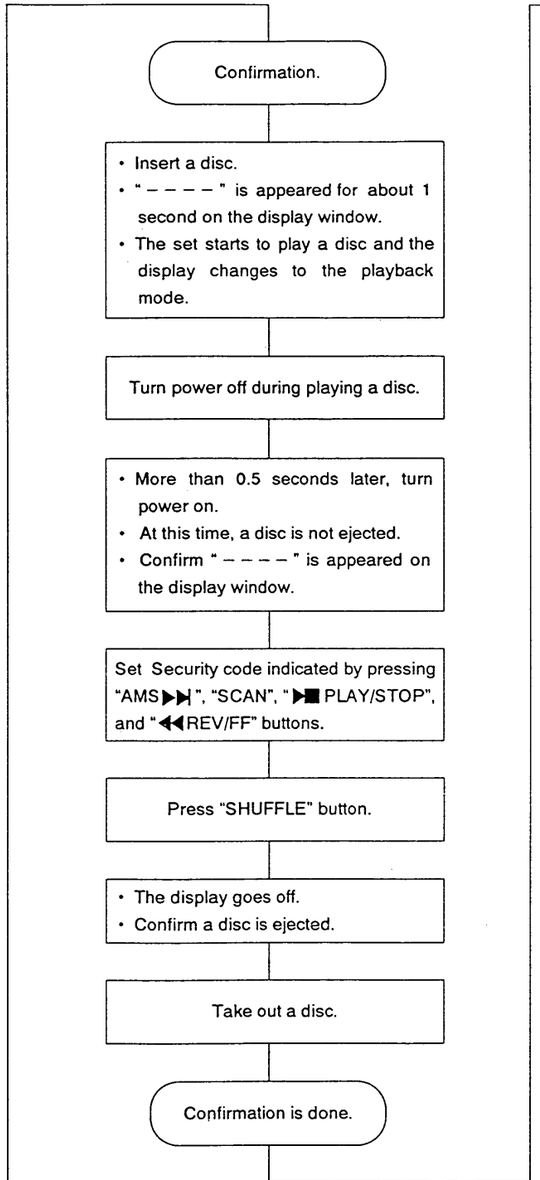
5. Set Factory Code by pressing [AMS ▶▶|], [SCAN], [▶■ PLAY / STOP], and [◀◀ REV / FF] buttons (displayed 1, 2, •••, 9, 0 by rotation in every pressing).
6. Press [SHUFFLE] button once.
7. Confirm the blinking code number on the display window.
8. Press [SHUFFLE] button again.
9. The display goes off and Factory Code is registered. (written)

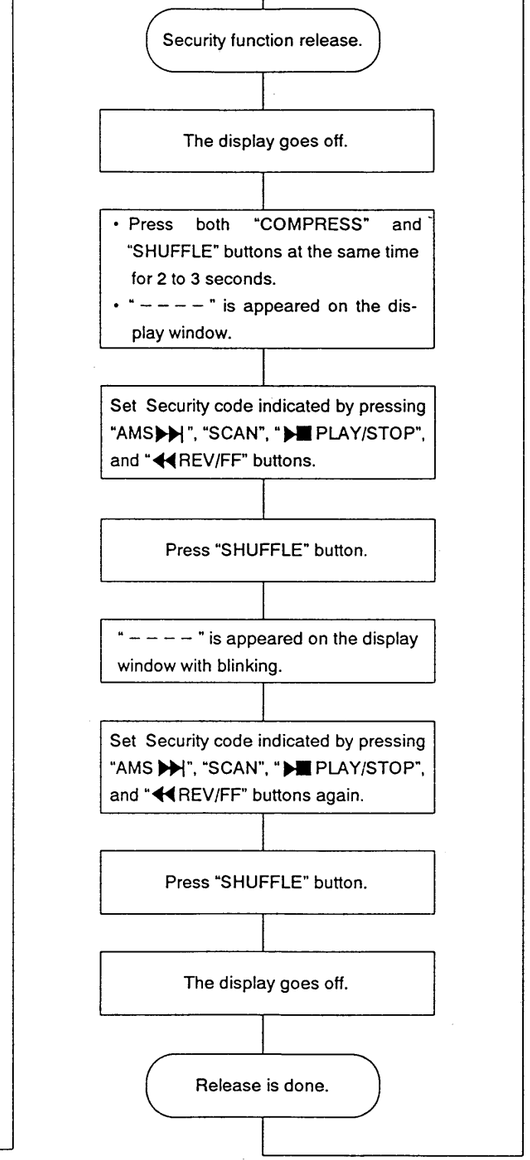


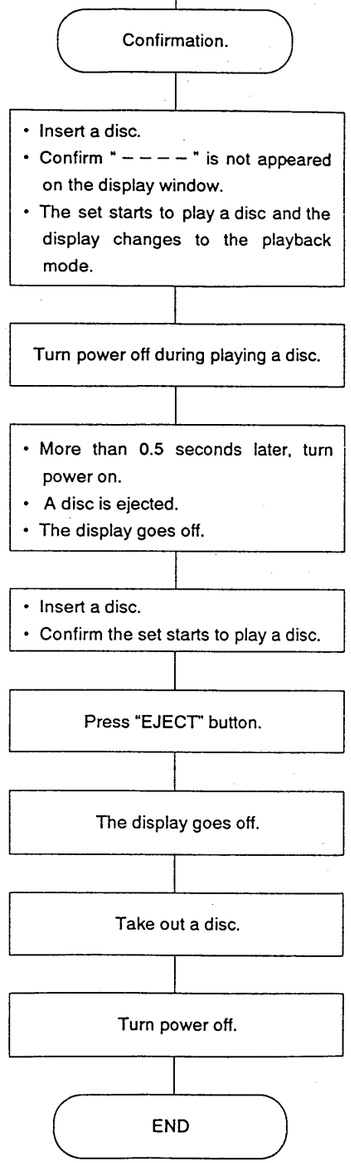
– Security Function Confirmation Flow Chart –

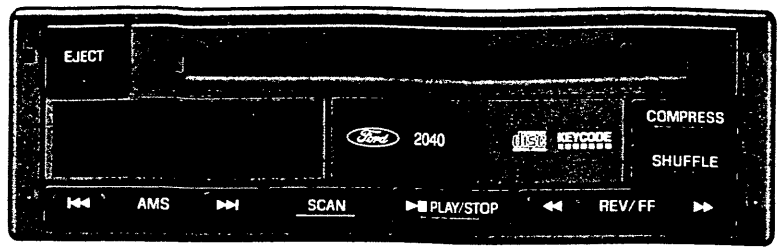
- Security function setting
- Setting confirmation
- Security function release
- Release confirmation


Supply power to the set.
Empty the set of its disc.
Security function setting.
Nothing is indicated on the display window.
• Press both "COMPRESS" and "SHUFFLE" buttons at the same time for 2 to 3 seconds.
• Security code is indicated for about 1 second on the display window.
• " – – – – " is appeared with blinking.
Set Security code indicated by pressing "AMS ▶▶|", "SCAN", "▶■ PLAY/STOP", and "◀◀ REV/FF" buttons.
Press "SHUFFLE" button.
" – – – – " is appeared on the display window with blinking.
Set Security code indicated by pressing "AMS ▶▶|", "SCAN", "▶■ PLAY/STOP", and "◀◀ REV/FF" buttons again.
Press "SHUFFLE" button.
The display goes off.
Setting is done.


Confirmation.
• Insert a disc.
• " – – – – " is appeared for about 1 second on the display window.
• The set starts to play a disc and the display changes to the playback mode.
Turn power off during playing a disc.
• More than 0.5 seconds later, turn power on.
• At this time, a disc is not ejected.
• Confirm " – – – – " is appeared on the display window.
Set Security code indicated by pressing "AMS ▶▶|", "SCAN", "▶■ PLAY/STOP", and "◀◀ REV/FF" buttons.
Press "SHUFFLE" button.
• The display goes off.
• Confirm a disc is ejected.
Take out a disc.
Confirmation is done.


Security function release.
The display goes off.
• Press both "COMPRESS" and "SHUFFLE" buttons at the same time for 2 to 3 seconds.
• " – – – – " is appeared on the display window.
Set Security code indicated by pressing "AMS ▶▶|", "SCAN", "▶■ PLAY/STOP", and "◀◀ REV/FF" buttons.
Press "SHUFFLE" button.
" – – – – " is appeared on the display window with blinking.
Set Security code indicated by pressing "AMS ▶▶|", "SCAN", "▶■ PLAY/STOP", and "◀◀ REV/FF" buttons again.
Press "SHUFFLE" button.
The display goes off.
Release is done.


Confirmation.
• Insert a disc.
• Confirm " – – – – " is not appeared on the display window.
• The set starts to play a disc and the display changes to the playback mode.
Turn power off during playing a disc.
• More than 0.5 seconds later, turn power on.
• A disc is ejected.
• The display goes off.
• Insert a disc.
• Confirm the set starts to play a disc.
Press "EJECT" button.
The display goes off.
Take out a disc.
Turn power off.
END



Eject Button
Pressing this button will eject the disc.

Scan Button
Pressing this button during either play mode or stop mode, will cause the CD player to advance to the selection and play for 8 seconds. The sequence will continue until the button is pushed a second time. When the end of the disc is reached the player will return to the beginning of Track #1 and continue tne SCAN sequence. When Scan is active, both the track # and elapsed time will be displayed and the track # will blink.

Fast Forward/Fast Reverse Buttons
During either play mode or stop mode, depressing this button will cause the player to move either forward or backward within a track on the disc.

◀◀ : To go backwards at high speed
▶▶ : To skip ahead at high speed

AMS (Automatic Music Search) Key
During either play mode or stop mode, pressing either side of this button will start playback at the beginning of a particular selection.

|◀◀ : To go back to the beginning of a current selection
▶▶| : To skip ahead to the beginning of a later selection

▶ PLAY/■ STOP Key and Indicators
When a disc is loaded, the unit automatically enters play mode and the " ▶ " indicator illuminates.
When the disc is playing and the Play/Stop is pressed, play mode is suspended, the "■ " indicator illuminates, the disc stops rotating and enters the stop mode.
To resume CD play, press the key once again.

Compression Switch
During the compression mode, the indicator "COMP " in the display will be ON.

Shuffle
Activating this feature will cause the selections on the disc to be played in random order. When shuffle mode is active, the word " SHUF " will be illuminated in the display.

Stop Mode
Each of the following operations activates the stop mode.
1. When the Play/Stop button is pressed while in play Mode.
2. Removing a disc, using Eject.

Play Mode
Each of the following operations will activate the Play Mode.
1. Inserting a disc
2. Pressing the Play/Stop button, when the unit is in the Stop Mode.

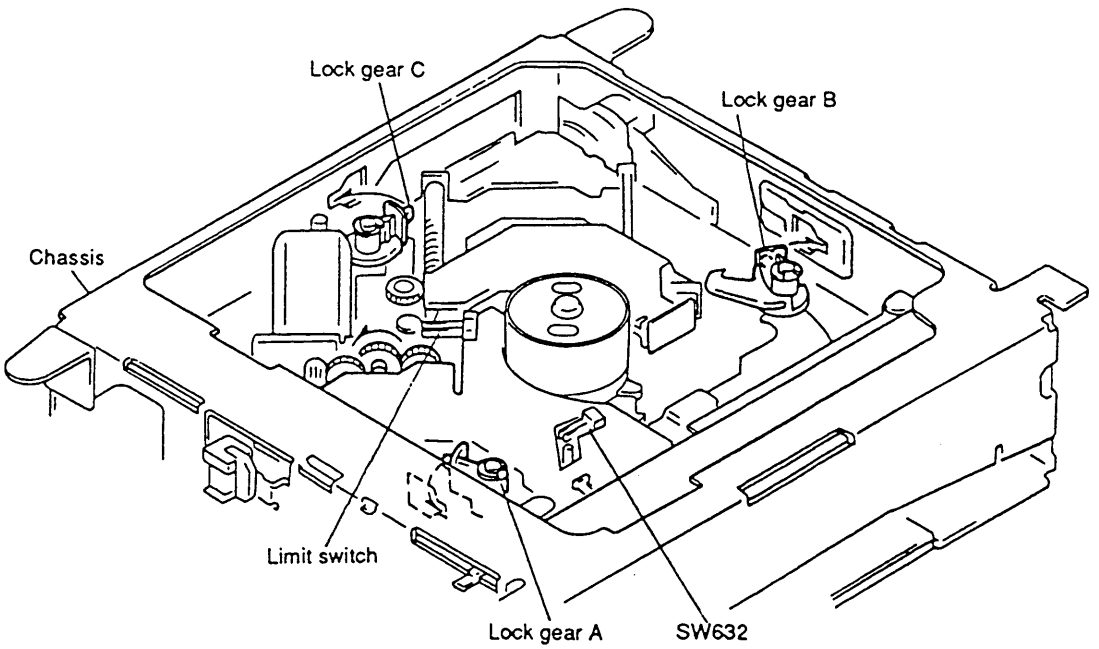
Eject Mode
Each of the following operations will activate the Eject Mode.
1. Pressing the Eject button
2. Inserting the disc incorrectly
3. Dislodging of focus, due to disc scratches or external vibration.

Disc Loading
The disc will be loaded into the mechanism when it is inserted into the slot and gently pushed.
The opening to the loading slot is blocked and will not open after loading is completed. This is the Double Loading prevention function.

High Temperature Operation
The CD player shall contain an automatically resettable heat detection circuit to monitor the internal temperature of the player. When the temperature reaches extreme limits, power to the laser diode will be cut to prevent damage. Upon actuation of the circuit, the disc player will enter Stop Mode and the CD EXT out line will go low to turn control over to the radio. The word " HOT " shall be shown on the disc player display. When the internal temperature of the CD player returns within maximum operating temperature, the elapsed time and track number will replace the word " HOT " and the CD player will remain in Stop Mode. The CD player shall be fully functional when the ambient temperature is 50 ℃ or less.

SECTION 1
CIRCUIT DESCRIPTION

When the optical section moved toward the inner circumference and the limit switch is turned on, the sled motor starts to rotate the gear in the direction of the arrow and the MD section is fixed to the chassis.
When the lock gear is fixed to the chassis, SW632 is turned on. When SW632 is turned on, the loading motor is rotated to eject the disc.



• IC301 (MAIN BOARD) SYSTEM CONTROL (μPD75512GF)

Pin No.	Pin Name	I / O	Description	Activation
1	LAMP IN	I	Dimming voltage.	ANALOG
2	AV REF	I	Voltage reference (5V).	
3 4	VDD	–	5V	
5 | 9	–	–		
10	DATA	O	DATA to the IC401. (Display and dimming data)	
11	CLOCK	O	DATA CLOCK for the IC401.	
12	LATCH	O	DATA LATCH for the IC401.	H
13	–	–		
14 | 16	KS2 | KS0	O	KEY SCAN output.	H
17 | 20	–	–		
21 | 24	KI3 | KI0	I	KEY SCAN input.	H
25 | 32	–	–		
33	GND	–	GND	
34	–	–		
35	CD/EXT	O	CD/EXTERNAL audio select.	H
36	LOG SENS	O	LOGIC SENSE	H
37	MUTE	O	MUTE control.	H
38 39	–	–		
40	SRQ	I	Service request.	L
41	C. SW	I	C SWITCH	L
42	CS	O	CHIP SELECT for the mechanism micro computer (IC601).	L
43	MD RST	O	RESET for the mechanism micro computer (IC601).	L
44	–	–		
45	POWER	O	POWER SUPPLY ON/OFF.	L
46 | 48	–	–		
49	TEST IN	I	(TEST)	
50	SI	I	DATA INPUT from the mechanism micro computer (IC601).	
51	SO	O	DATA OUTPUT to the mechanism micro computer (IC601).	
52	SCK	I/O	DATA CLOCK for the mechanism micro computer (IC601).	
53	RADIO ON	I	RADIO ON	H
54	GND	–	GND	
55	XT1	–	0V	
56	XT2	–		
57	IC	–	0V	

Pin No.	Pin Name	I / O	Description	Activation
58	X1	–	Oscillator (4.194304 MHz)	
59	X2	–		
60	RESET	I	System RESET	L
61 | 72	–	–		
73	AVSS	–	GND	
74 | 80	–	–		

• IC301 (MD MAIN BOARD) D/A CONVERTER, DIGITAL FILTER (SM5872BS)

Pin No.	Pin Name	I / O	Description
1	XTO	O	Oscillator ouput terminal.
2	XVSS	–	X'tal system VSS terminal. (0V)
3	CKSL	I	Fixed level to "H" in use.
4	CKO	O	Oscillator ouput clock. (384fs)
5	MUTEO	O	Infinity • zero detect output.
6	MUTEI	I	MUTE input. (H : Software mute ON of digital filter. / L : Software mute OFF of digital filter.)
7	MCOM	I	Interface switching control. (MDT/FSEL1, MCK/FSEL2, MLEN/DEEM) (H : MDT, MCK, MLEN control. L : FSEL1, FSEL2, DEEM)
8	LRCI	I	Samplerate (fs) clock of input data. (H : Lch / L : Rch)
9	BCKI	I	Bit clock of input data.
10	DI	I	Input data.
11	MDT/ FSEL1	I	Micro computer interface data. (MCOM = H : MDT)
12	MDT/ FSEL2	I	Micro computer interface clock. (MCOM = H : MCK)
13	MLEN/ DEEM	I	MCOM = H : MLEN Micro computer interface latch inable. MCOM = L : DEEM Deemphasis control. (DEEM = H/L : Deemphasis ON/OFF)
14	RSTN	–	System reset. (RSTN = H : Normal mode / RSTN = L : Reset)
15	DVSS	–	Digital GND terminal. (0V)
16	DVDD	–	Digital VDD terminal. (5V)
17	AVDD1	–	Analog VDD terminal 1. (5V)
18	LO	O	L ch PWM output. (+)
19	AVSS1	–	Analog GND terminal 1. (0V)
20	LON	O	L ch PWM output. (–)
21	AVDD2	–	Analog VDD terminal 2. (5V)
22	AVDD3	–	Analog VDD terminal 3. (5V)
23	RON	O	R ch PWM output. (–)
24	AVSS2	–	Analog GND terminal 2. (0V)
25	RO	O	R ch PWM output. (+)
26	AVDD4	–	Analog VDD terminal 4. (5V)
27	XVDD	–	X'tal system VDD terminal. (5V)
28	XTI	I	Oscillator input terminal. (384fs)

MCOM = L	FSEL2	
FSEL1	L	H
L	44.1 kHz	48.0 kHz
H	(44.1 kHz)	32.0 kHz

• **IC601 (MD MAIN BOARD) MECHANISM CONTROL (CXP50116)**

Pin No.	Pin Name	I / O	Description	Activation
1	COMP	O	COMPRESSION ON/OFF.	H
2	MUTE	O	MUTE control.	H
3	APC	O	Laser power ON/OFF.	L
4	–	–		
5	FGGL	O	1kHz oscillator output. (Focus gain adjustment)	H
6	TGGL	O	1kHz oscillator output. (Tracking gain adjustment)	H
7	FGGH	O	Oscillator switch. (Focus gain adjustment)	L
8	TGGH	O	Oscillator switch. (Tracking gain adjustment)	L
9	FG0	O	FOCUS GAIN setup.	
10	FG1			
11	TG0	O	TRACKING GAIN setup.	
12	TG1			
13	TOLF	O	Low pass filter switch. (E-F balance adjustment)	H
14	TO0	O	E-F balance setup.	
15 | 17	FO0 | FO2	O	FOCUS error offset setup.	
18 | 20	TO1 | TO3	O	E-F balance setup.	
21 | 28	–	–		
29	SCOR	I	SCOR	H
30	–	–		
31	CS	I	CHIP SELECT from the system micro computer (IC301).	L
32	RST	I	RESET	L
33	–	–		
34	Vdd	–	5V	
35	CLOCK	O	DATA CLOCK for the IC503.	
36	LAT	O	DATA LATCH for the IC503.	L
37	DAT	O	DATA to the IC503.	
38	RST	O	RESET for the IC502 and IC503.	L
39	FOK	I	FOK	H
40	CS	I	(Pair with the Pin No.31.)	L
41	MD2	O	"DIGITAL OUT" ON/OFF.	H
42	SENS	I	SENSE	
43	DFCT	I	DFCT	H
44	SC	I/O	DATA CLOCK for the system micro computer (IC301).	
45	SO	O	DATA OUTPUT to the system micro computer (IC301).	
46	SI	I	DATA INPUT from the system micro computer (IC301).	
47	HOT	I	High temperature detection (80℃).	H
48	SQCK	O	SUB Q CLOCK	
49	SUBQ	I	SUB Q	
50	GFS	I	GFS	H
51 | 54	TESTI0 | TESTI3	I	5V (TEST)	L

Pin No.	Pin Name	I / O	Description	Activation
55	LOAD	O	Loading motor (LOAD).	H
56	EJECT	O	Loading motor (EJECT).	H
57	PLUNG	O	PLUNGER	H
58	POWER	O	Power supply ON/OFF.	H
59	ADJE	O	Auto adjustment error flug.	H
60	TESTE	O	(TEST)	H
61	WP	I	5V	H
62	TEST	I	5V (TEST)	L
63	DPLL	I	5V (TEST)	L
64	MODE	I	5V (TEST)	L
65	GSW	I	G SWITCH : Lock completes.	
66	FSW	I	F SWITCH : Chucking completes.	
67	ESW	I	E SWITCH : Loading completes. Chucking begins.	
68	DSW	I	D SWITCH : Eject completes (12cm). Detects 8cm/12cm.	
69	CSW	I	C SWITCH : Loading begins. Eject completes (8cm).	
70	BSW	I	B SWITCH : Detects disc existence (8cm).	
71	Vss	–	GND	
72	ETAL	–	Oscillator (4.194304 MHz)	
73	–	–		
74	EXTAL	–	Oscillator (4.194304 MHz)	
75	VREF	–		
76	VFDP	–	GND	
77	SRQ	O	Service request.	L
78	LATCH	O	DATA LATCH for the IC301.	L
79	SHIFT	O	DATA SHIFT CLOCK for the IC301.	
80	ATT	O	DATA to the IC301. (Attenuation data)	

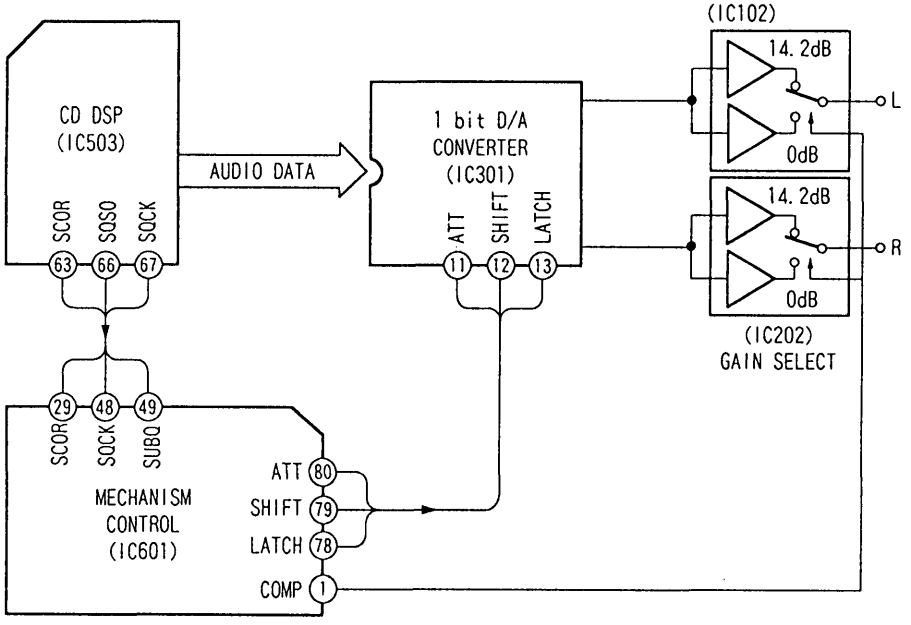
Compressor

The audio compressor is realized by digital processing in a microcomputer.

Operations

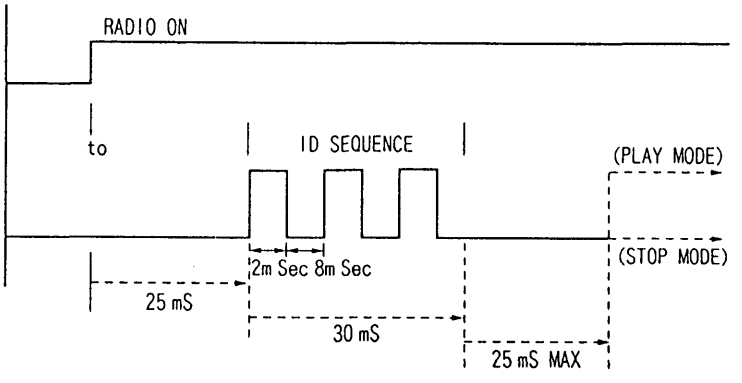
1. The level data is output from the SQSO terminal of IC503 based on the SCOR timing.
2. The compression rate is calculated by IC601 and is output as the control data from the ATT terminal.
3. The sound level is adjusted by IC301 based on the control data.

The IC102 and IC202 make the necessary gain switch-overs to adjust the output level during on and off of the compressor.



Identification Sequence

The identification sequence is output from the "CD Logic Sense" terminal of CNJ5 when the "Radio On" terminal of CNJ106 is adjusted to "H".

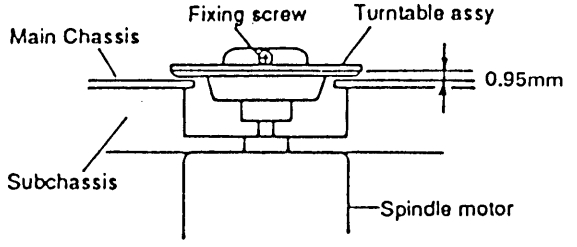


SECTION 2
ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

Turntable Height Adjustment

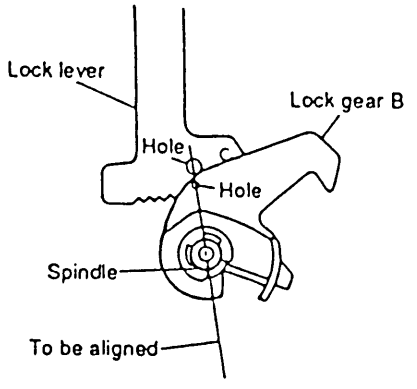
Loosen the fixing screws and adjust the height to the specification illustrated.



Lock Gears (A and B) Installing Adjustment

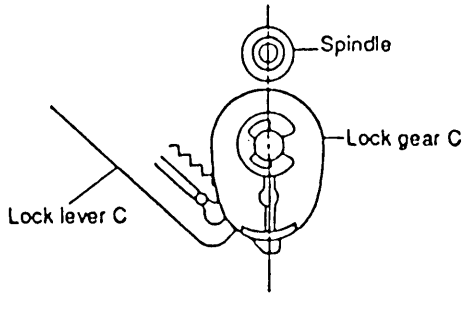
Since installing lock gears A and B is the same, only lock gear B is described below.

1. Rotate the gear near the motor with your fingers to move the optical section toward the external circumference.
2. Continue to rotate the gear until the lock gear is disconnected from the notch of the chassis and stops.
3. Fix the lock gear so that the holes of the lock lever and the lock gear and the spindle are roughly aligned.



Lock Gear C installing Position Adjustment

1. Rotate the gear near the motor and move the optical section toward the external circumference.
2. Continue to rotate the gear until the lock gear is disconnected from the notch of the chassis and stops.
3. Fix lock gear C so that the spindle, the lock gear C fixing axis and the center of the lock gear C projection are roughly aligned.



2-2. ELECTRICAL ADJUSTMENTS

Adjustments

The adjustments of the EF balance, focus error bias, tracking gain and focus gain are performed automatically by the microcomputer (IC601). These adjustments are performed every time under the following conditions.

1. Just before a loaded disk begins to play.
2. Just before the play after "RADIO ON" has been adjusted from Low to High (Power ON) begins.
3. The adjustment is made just before a disk which has been stopped once, is played again. And if there were error outbreaks in step 2, the items which were faulty are adjusted.

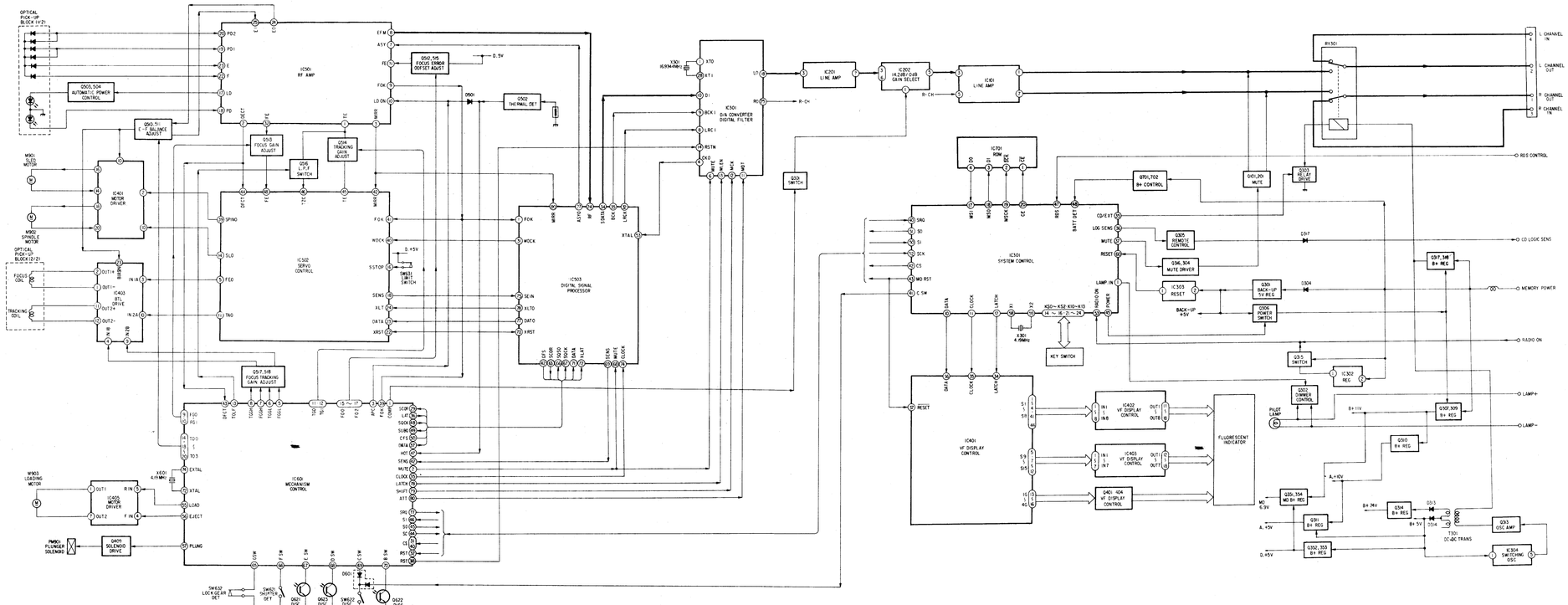
The Pin 59 "ADJE" of IC601 becomes "H" (5 V) when proper automatic adjustments could not be performed, to indicate an error. However, the play is performed normally.

Causes of Automatic Adjustment Errors

1. E-F Balance
   a. Defective optical system (KSS-168A).
   b. Defective R500, R550, R551, R552, R505, R598, Q510, Q511, Q516 and C512.
2. Focus Error Bias
   a. Defective R554, R555, R556, R507, R553, Q512 and Q515.
3. Tracking Gain
   a. Defective optical system (KSS-168A).
   b. Dirty disk.
   c. Defective R563, R564, Q514, Q517, Q518, R404 and R406.
4. Focus Gain
   a. Defective optical system (KSS-168A).
   b. Dirty disk.
   c. Defective R559, R560, Q513, Q517, Q518, R403 and R405.

SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM



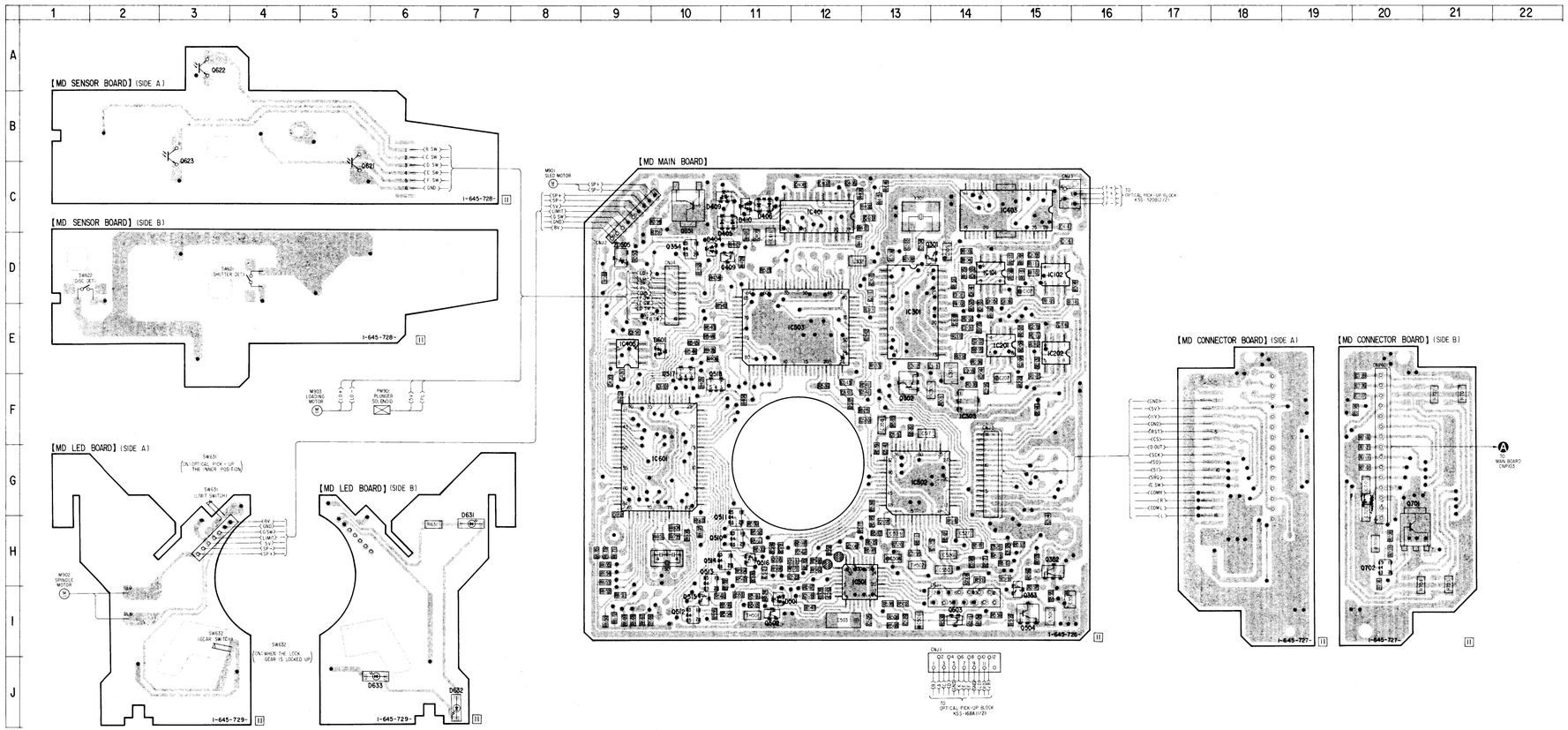
• **Semiconductor Location (MD Section)**

Ref. No.	Location	Ref. No.	Location
D404	D-10	Q301	D-13
D405	C-11	Q302	F-13
D406	C-11	Q351	C-10
D409	C-10	Q352	H-15
D410	C-11	Q353	I-15
D501	I-11	Q354	D-10
D601	E-10	Q409	D-11
D631	H-7	Q502	I-11
D632	J-7	Q503	I-14
D633	J-6	Q504	I-15
		Q510	H-11
IC101	D-14	Q511	H-11
IC102	D-15	Q512	I-10
IC201	E-14	Q513	H-10
IC202	E-15	Q514	H-10
IC301	E-13	Q515	I-10
IC303	F-14	Q516	H-11
IC401	C-12	Q517	F-10
IC403	C-15	Q518	F-10
IC405	E-9	Q621	C-5
IC501	H-12	Q622	A-3
IC502	G-13	Q623	B-3
IC503	E-12	Q701	H-20
IC601	G-10	Q702	H-20

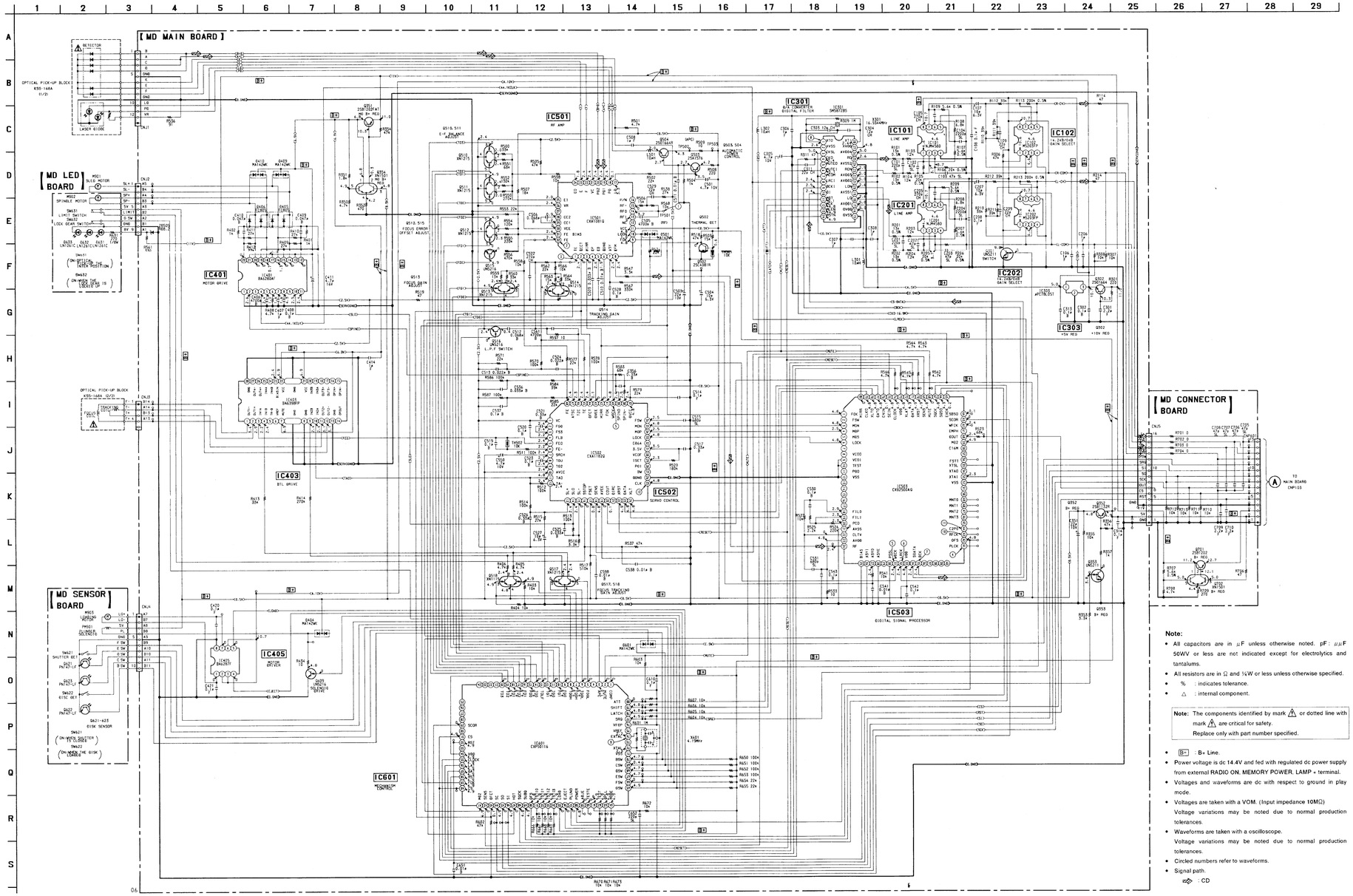
Note:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- : Pattern from the side which enables seeing.

(The other layers patterns are not indicated.)



3-3. SCHEMATIC DIAGRAMS (MD Section)



• Waveforms

① 1.1Vp-p, IC501 pin (14)

② Approx. 100mVp-p, IC501 pin (32)

③ Approx. 200mVp-p, IC501 pin (1)

④ 5Vp-p, 200nsec, IC503 pin (41)

⑤ 5Vp-p, 12 μsec, IC502 pin (40), IC503 pin (31)

⑥ 5Vp-p, 22 μsec, IC503 pin (32)

⑦ 5Vp-p, 480nsec, IC503 pin (35)

⑧ 3.8Vp-p, 16.9344MHz, IC301 pin (1)

⑨ 9Vp-p, 4.19MHz, IC601 pin (74)

⑩ 2.5Vp-p, 130 μsec, IC503 pin (43)

⑪ 150mVp-p, 100nsec, IC503 pin (44)

⑫ 160mVp-p, IC502 pin (25)

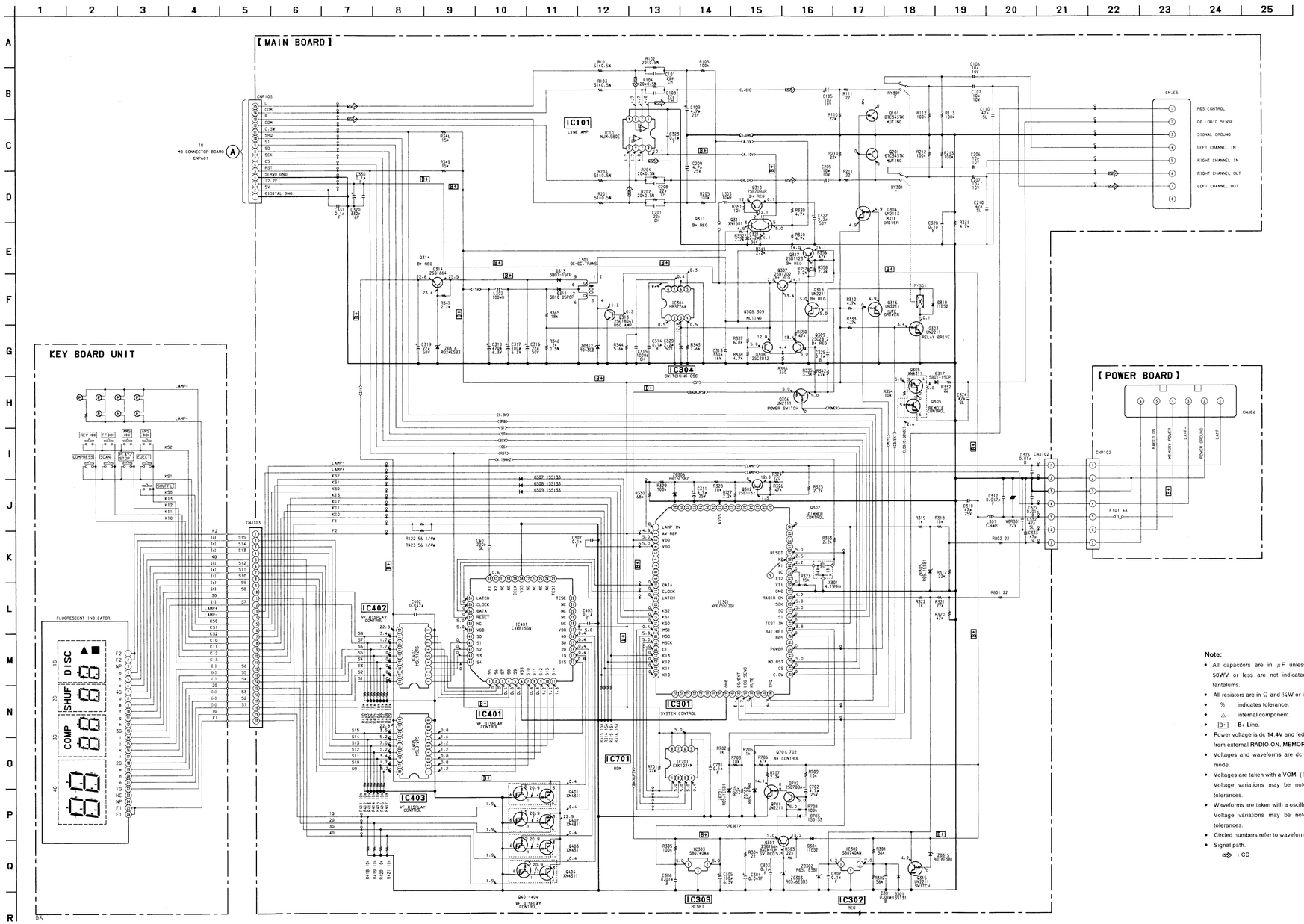
Note:

- All capacitors are in μF unless otherwise noted. pF : μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.

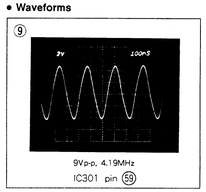
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B+ Line.
- Power voltage is dc **14.4V** and fed with regulated dc power supply from external **RADIO ON, MEMORY POWER, LAMP +** terminal.
- Voltages and waveforms are dc with respect to ground in play mode.
- Voltages are taken with a VOM. (Input impedance **10MΩ**)
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

3-4. SCHEMATIC DIAGRAMS (MAIN Section)



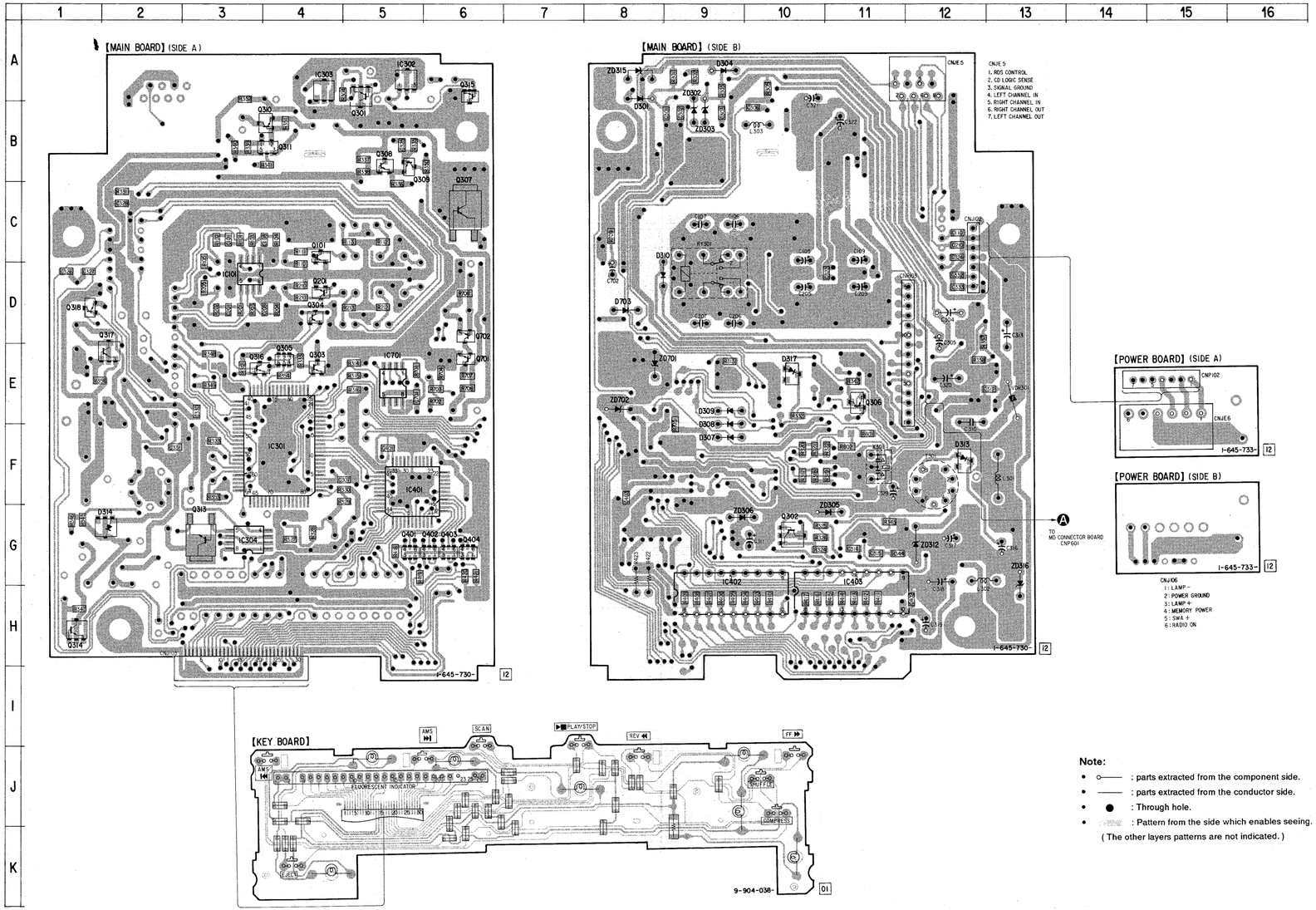
• Waveforms



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- B+ : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from external RADIO ON, MEMORY POWER, LAMP + terminal.
- Voltages and waveforms are dc with respect to ground in play mode.
- Voltages are taken with a VOM. (Input impedance 10MΩ)
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD

3-5. PRINTED WIRING BOARDS (MAIN Section)



Note:

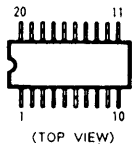
- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ● : Through hole.
- ▒▒ : Pattern from the side which enables seeing.
  (The other layers patterns are not indicated.)

• Semiconductor Location (MAIN Section)

Ref. No.	Location	Ref. No.	Location
D301	B-8	Q301	B-5
D304	A-9	Q302	G-10
D307	F-9	Q303	E-4
D308	F-9	Q304	D-4
D309	E-9	Q305	E-4
D310	D-8	Q306	E-11
D313	F-12	Q307	C-6
D314	G-2	Q308	B-5
D317	E-10	Q309	B-5
D703	D-8	Q310	B-4
		Q311	B-4
IC101	D-3	Q313	G-3
IC301	F-4	Q314	H-1
IC302	A-5	Q315	A-6
IC303	A-4	Q316	E-3
IC304	G-3	Q317	E-2
IC401	F-5	Q318	D-1
IC402	G-9	Q401	G-5
IC403	G-11	Q402	G-6
IC701	E-5	Q403	G-6
		Q404	G-6
Q101	C-4	Q701	E-6
Q201	D-4	Q702	D-6

3-6. SEMICONDUCTOR LEAD LAYOUTS

BA6280AF



(TOP VIEW)

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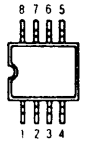
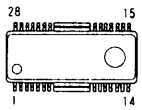
MB3776APF
NJM3404AM-T1

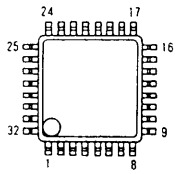


(TOP VIEW)

BA6398FP

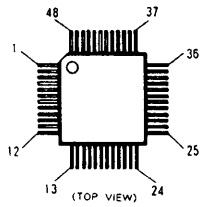


CXA1081Q



MARKING SIDE VIEW

CXA1182Q-Z



(TOP VIEW)

CXD2500BQ
CXP50116-436Q
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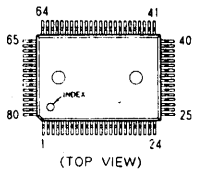
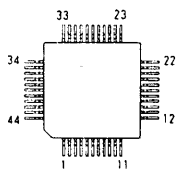
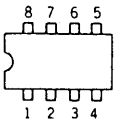


(TOP VIEW)

CXD8155Q

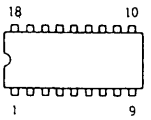


M5203FP



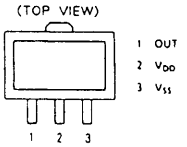
(TOP VIEW)

MSL912ARS

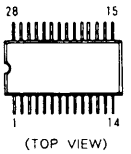


(TOP VIEW)

S-80740AN-D4-S

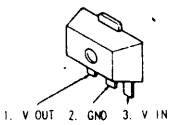


SM5872BS-ET



(TOP VIEW)

μPC78L05T



DTC343TK
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UN2113
UN2211
UN5216
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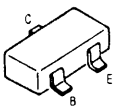
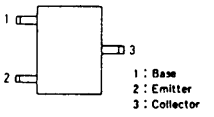
2SB1202FAST
2SB709A-R
2SC1623-L5L6
2SC2712-YG
2SD1804T-TL



PN147-LP-R

UN5211



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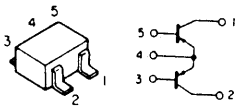
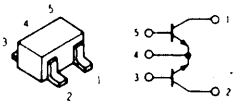


XN1215
XN1501



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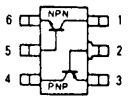

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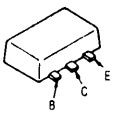
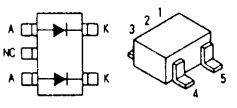
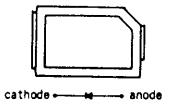
2SD1615A-GP



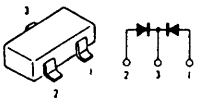
FC805



LN1261C



MA142WK



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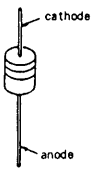
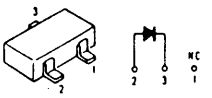
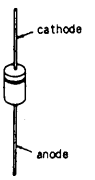
RD5.6ES-B3
RD15ES-B2
RD18ES-B1
RD24ES-B3
1SS119
11ES2



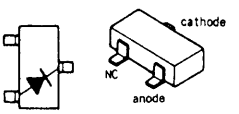
RD8.2M-B1
SB01-15CP



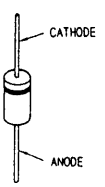
RD43EBTN



SB10-05PCP

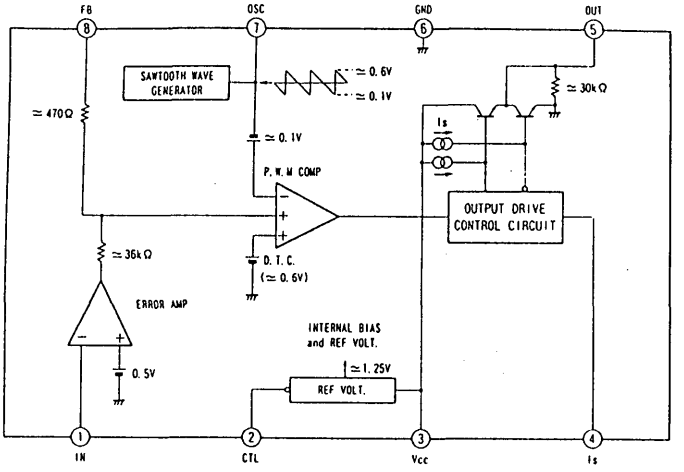


1S1585

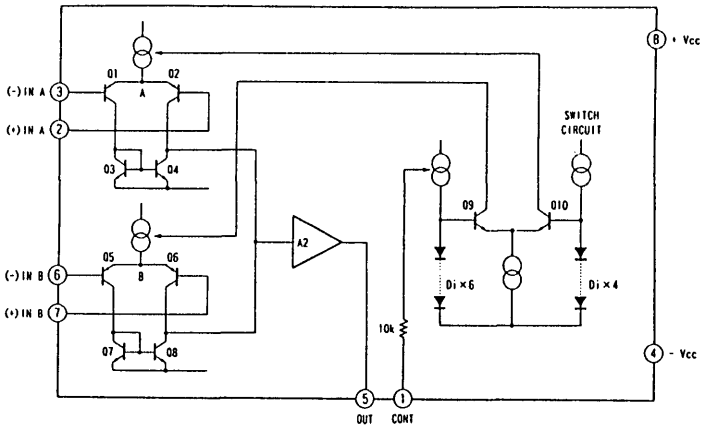


3-7. IC BLOCK DIAGRAMS

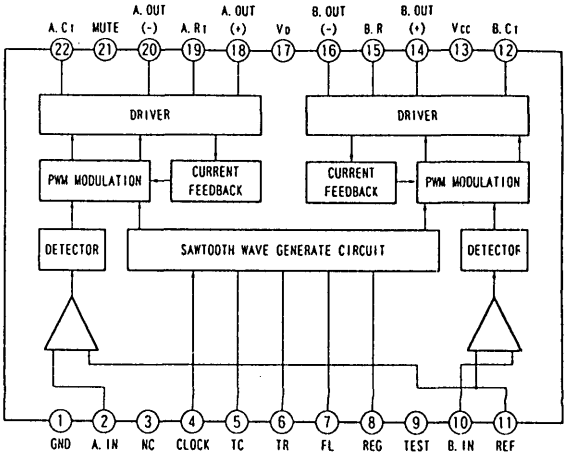
IC304 (MAIN BOARD) MB3776A



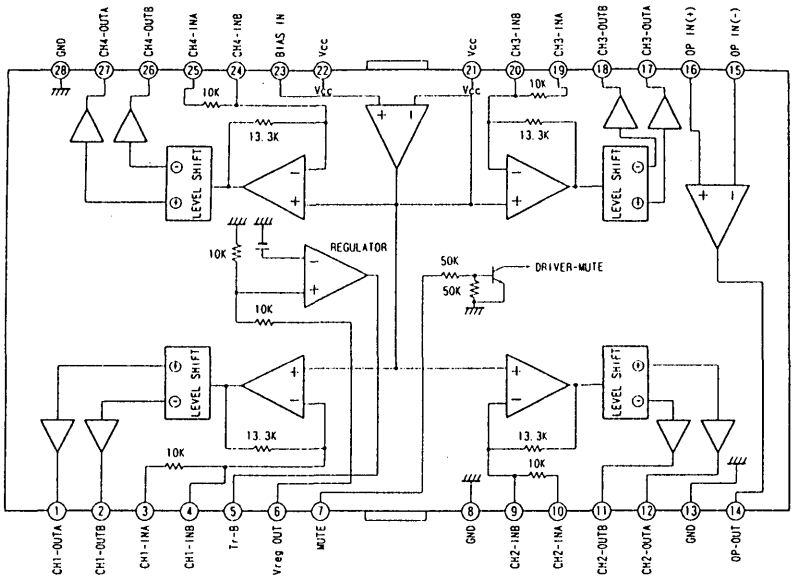
IC102 (MD MAIN BOARD) M5203FP



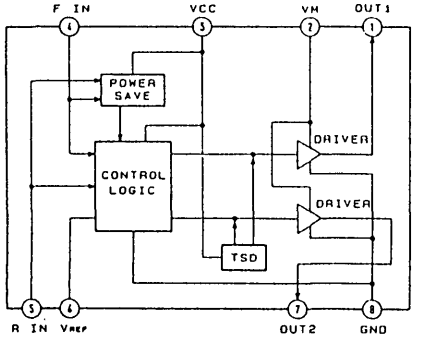
IC401 (MD MAIN BOARD) BA6280AF



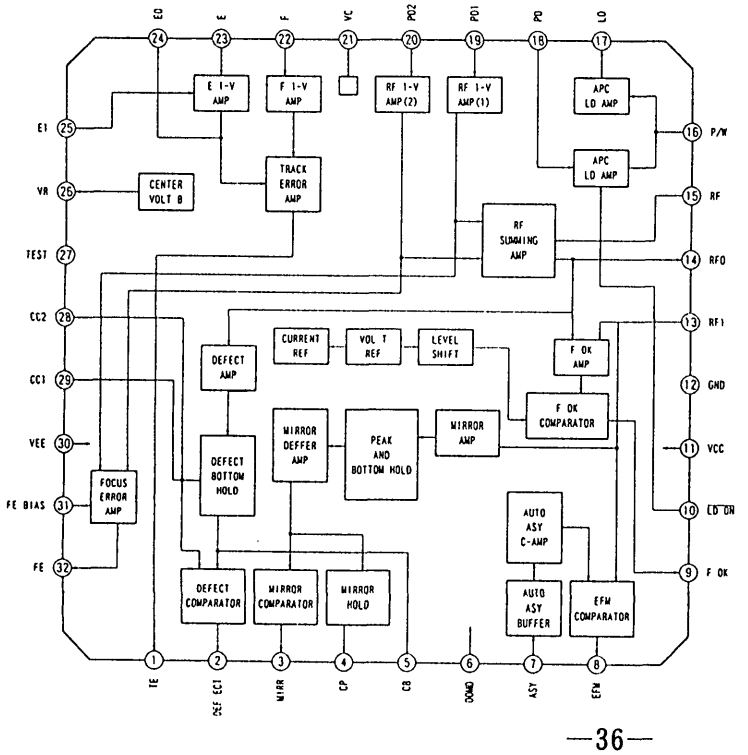
IC403 (MD MAIN BOARD) BA6398FP



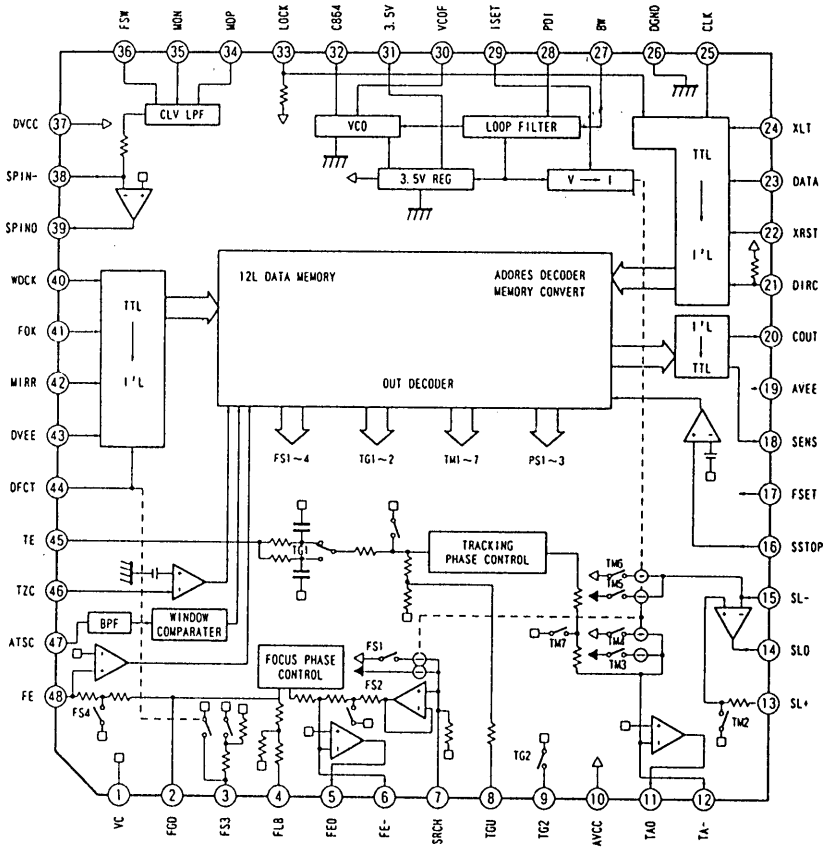
IC405 (MD MAIN BOARD) BA6287F



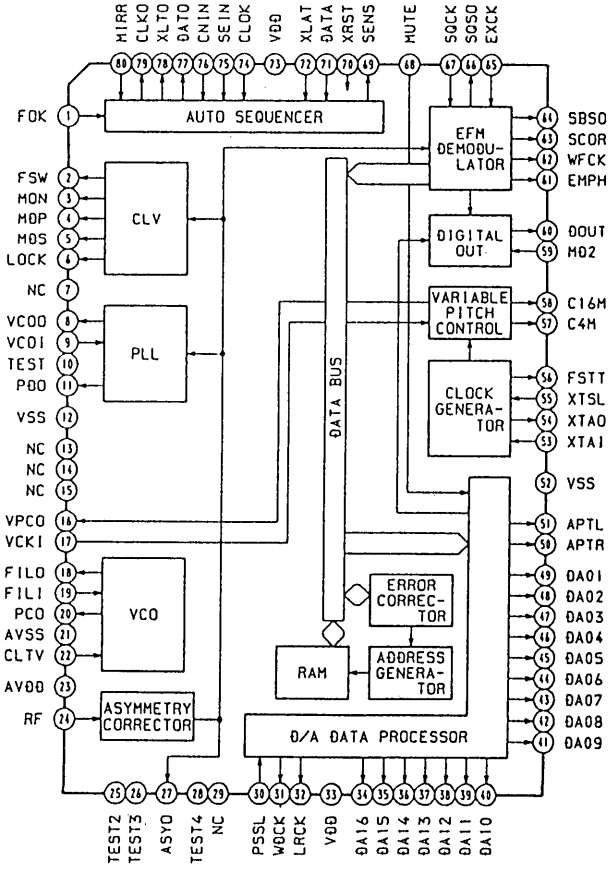
IC501 (MD MAIN BOARD) CXA1081Q



IC502 (MD MAIN BOARD) CXA1182Q



IC503 (MD MAIN BOARD) CXD2500BQ



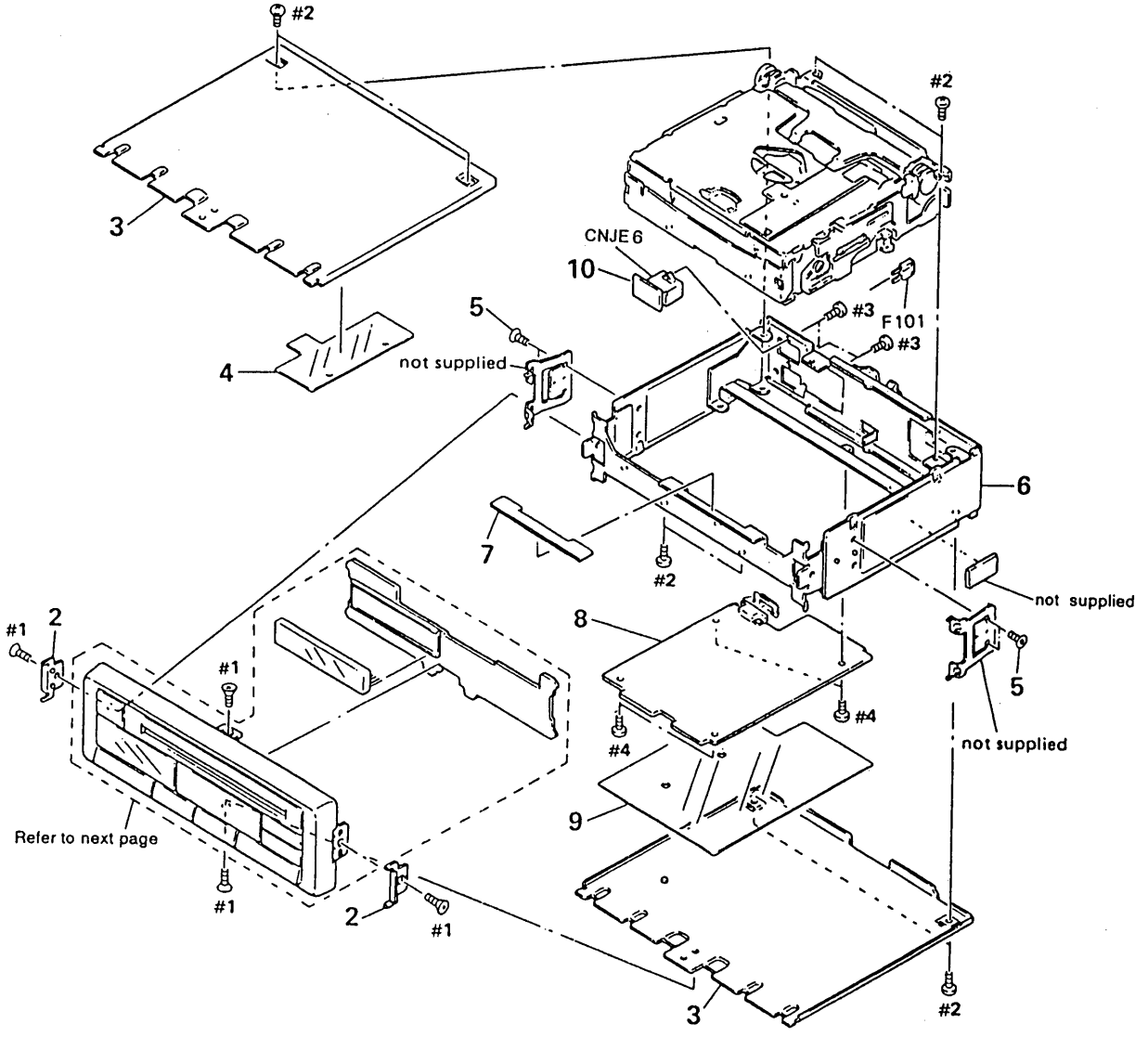
SECTION 4
EXPLODED VIEWS

NOTE:

- -XX,-X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts.
  Example:
  KNOB,BALANCE (WHITE) . . . (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

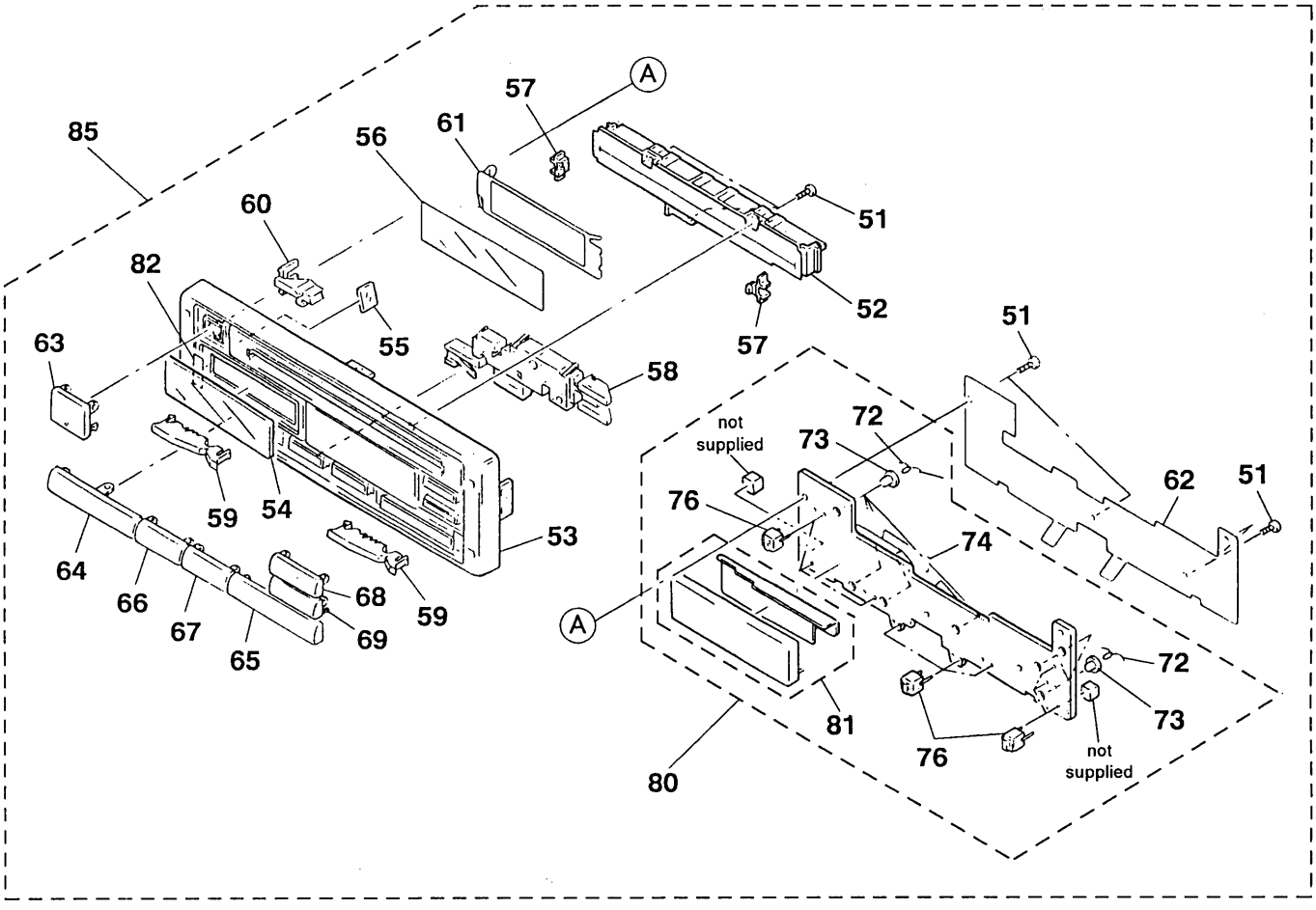
4-1. GENERAL



Ref. No.	Part No.	Description	Remark
* 2	3-362-079-01	REINFORCEMENT (PANEL)	
* 3	3-362-072-06	COVER	
* 4	3-363-074-01	SHEET (B)	
5	3-342-659-01	SCREW (SPRING CLIP)	
* 6	X-3364-446-2	CHASSIS ASSY	
* 7	3-363-076-01	SHEET (A)	

Ref. No.	Part No.	Description	Remark
* 8	A-3295-585-A	MAIN BOARD, COMPLETE	
* 9	3-363-075-01	SHEET (C)	
* 10	1-645-733-11	POWER BOARD	
CNJE6	1-691-448-11	SOCKET, CONNECTOR (PC BOARD)	
F101	1-576-234-11	FUSE (MINI BLADE TYPE) 4A	

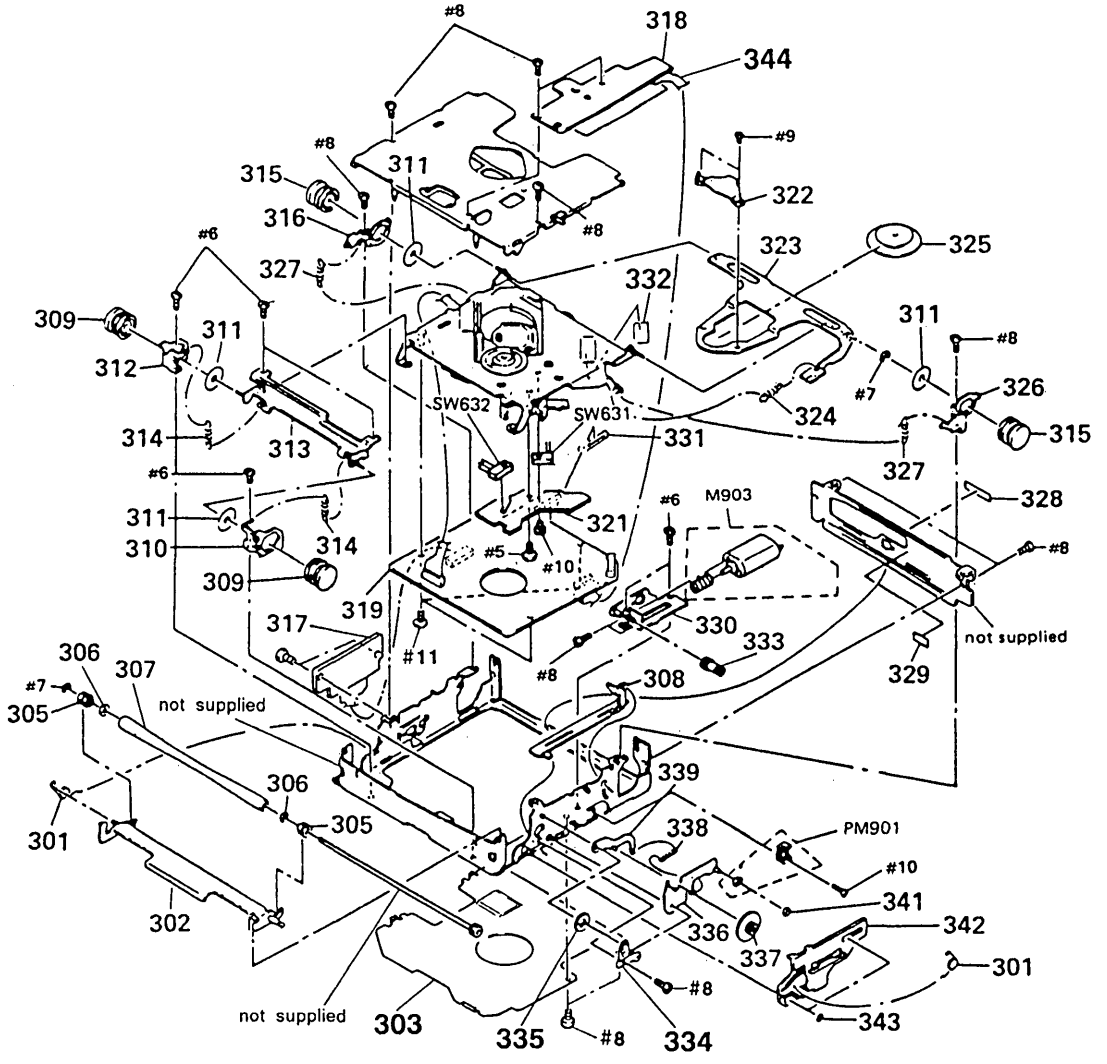
4-2. KEYBOARD UNIT



Ref. No.	Part No.	Description	Remark
51	9-904-012-01	SCREW, T	
52	9-901-817-01	CASE, SUB	
53	9-905-742-01	CASE	
54	9-904-830-01	FILTER	
55	9-904-016-01	FILTER	
56	9-904-829-01	FILTER	
57	9-901-819-01	GUIDE, LIGHT	
* 58	9-901-820-01	GUIDE, LIGHT	
* 59	9-901-821-01	GUIDE, LIGHT	
* 60	9-901-822-01	GUIDE, LIGHT	
* 61	9-904-021-01	PLATE, SHEELD	
* 62	9-904-022-01	INSULATOR	
63	9-905-743-01	BUTTON (EJECT)	
64	9-905-744-01	BUTTON (AMS)	

Ref. No.	Part No.	Description	Remark
65	9-905-745-01	BUTTON (REV/FF)	
66	9-905-746-01	BUTTON (SCAN)	
67	9-905-747-01	BUTTON (PLAY/STOP)	
68	9-905-748-01	BUTTON (COMPRESS)	
69	9-905-749-01	BUTTON (SHUFFLE)	
72	9-901-824-01	LAMP (7V/75mA)	
73	9-904-831-01	CAP, LAMP	
74	9-904-035-01	CABLE, FLEXIBLE (30P)	
76	9-901-826-01	SWITCH, TACT	
* 80	9-905-751-01	KEY BOARD, COMPLETE	
81	9-904-828-01	DISPLAY ASSY	
82	9-905-584-01	SHEET	
* 85	1-466-706-21	KEYBOARD UNIT	

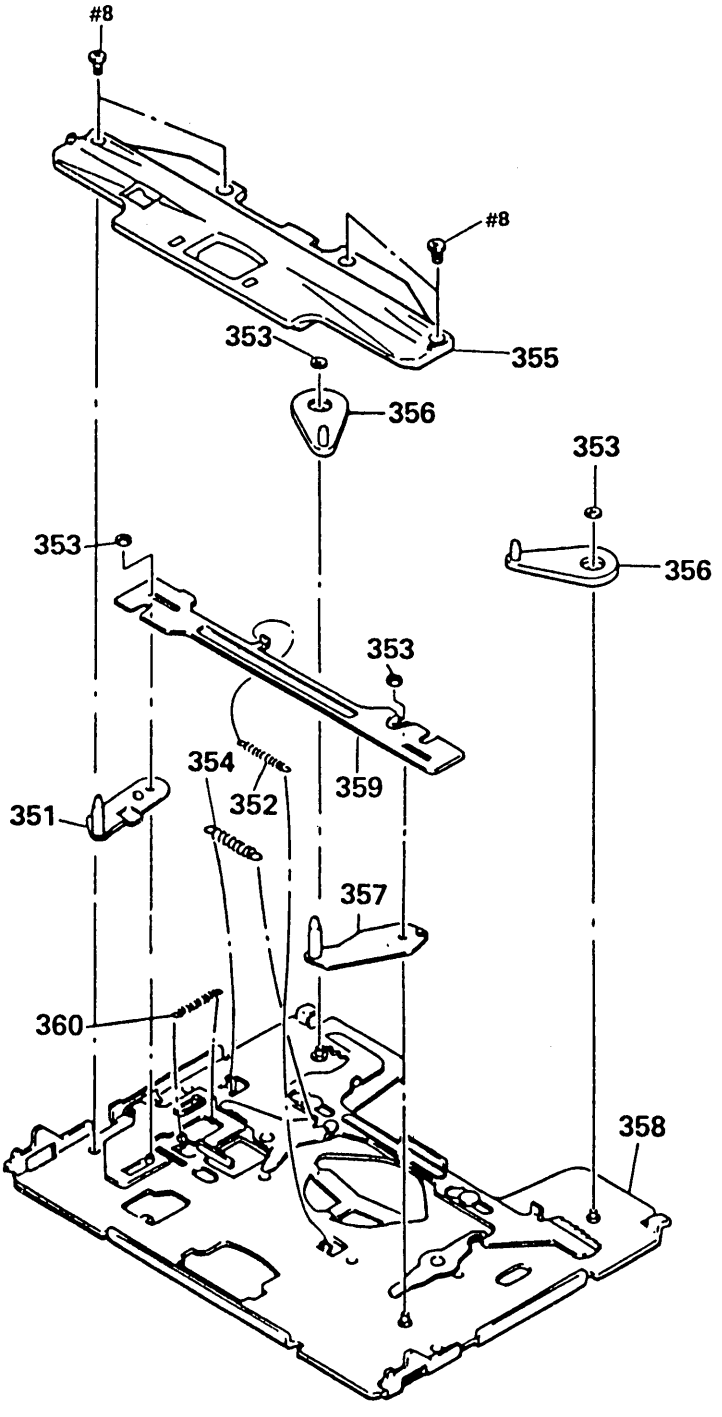
4-3. MD SECTION (1) (MG-300F-B)



Ref. No.	Part No.	Description	Remark
301	3-351-437-01	SPRING (ROLLER)	
302	X-3365-468-1	BRACKET (ROLLER) ASSY	
303	3-384-799-01	PLATE, SHIELD, MD	
305	3-351-416-01	BEARING (ROLLER SHAFT)	
306	3-701-438-11	WASHER, 2.5	
307	3-323-231-11	ROLLER (LOWER)	
* 308	X-3351-418-1	LEVER (CH RELEASE) ASSY	
309	3-364-310-01	DAMPER (F)	
* 310	3-351-492-01	BRACKET (DUMPER A)	
311	3-323-263-01	WASHER, TEFLON	
* 312	3-351-493-01	BRACKET (DUMPER B)	
* 313	X-3351-423-1	BRACKET (F) ASSY	
314	3-351-444-01	SPRING (FLOATING A, B), TENSION	
315	3-330-929-11	DAMPER (S), HYPER	
* 316	3-351-411-01	BRACKET (DAMPER D)	
* 317	1-645-727-11	MD CONNECTOR BOARD	
* 318	1-645-728-11	MD SENSOR BOARD	
* 319	A-3295-184-A	MD MAIN BOARD, COMPLETE	
* 321	1-645-729-11	MD LED BOARD	
322	3-342-625-01	RETAINER (S2), THRUST	
* 323	3-351-453-01	ARM, CHUCKING	
324	3-351-443-01	SPRING (CHUCKING), TENSION	
325	3-348-558-01	PLATE (F), CHUCK	

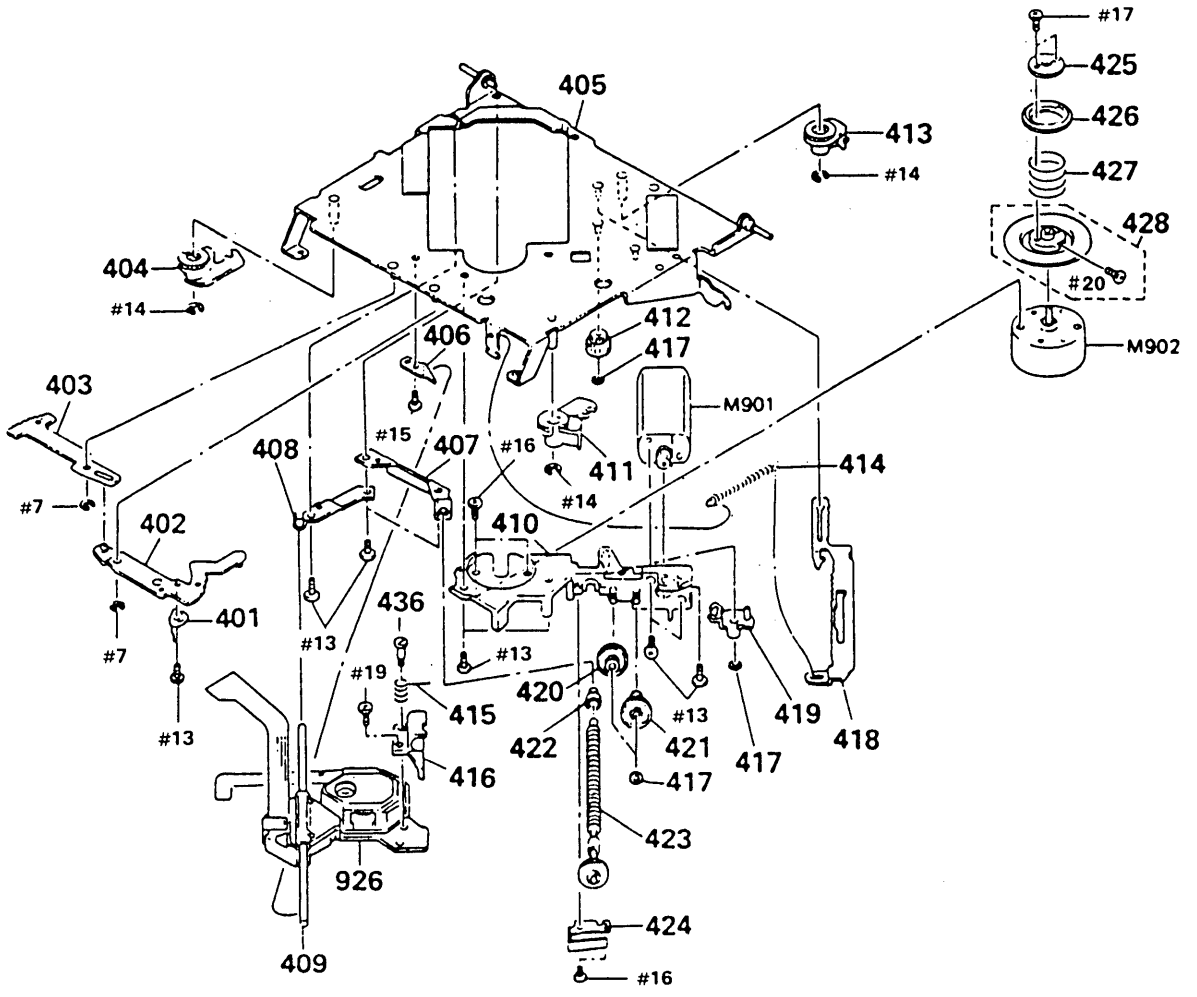
Ref. No.	Part No.	Description	Remark
* 326	3-351-494-01	BRACKET (DUMPER C)	
327	3-351-445-01	SPRING (FLOATING C, D), TENSION	
* 328	3-362-091-06	BRACKET (REAR F2)	
* 329	3-351-464-01	SHEET (SM), INSULATING	
* 330	X-3351-419-1	BRACKET (M) ASSY	
331	9-911-844-XX	SHEET	
* 332	3-351-466-01	SHEET (TH1), INSULATING	
333	3-351-498-01	GEAR (B, WORM WHEEL)	
* 334	3-351-482-01	RETAINER (SIDE GEAR 2)	
335	3-351-414-01	GEAR (C)	
* 336	X-3351-421-1	LEVER (SW) ASSY	
337	3-351-438-01	GEAR, CAM	
338	3-351-463-01	SPRING (SW LEVER 2), TENSION	
* 339	X-3351-420-1	LEVER (GEAR C) ASSY	
341	3-315-384-11	WASHER, STOPPER	
342	3-351-456-11	LEVER (L, E)	
343	3-578-224-00	WASHER	
344	1-629-581-11	SENSOR FILEXIBLE BOARD	
M903	A-3249-535-A	GEAR (A) ASSY (LOADING)	
PM901	1-454-461-11	SOLENOID, PLUNGER	
SW631	1-554-938-11	SWITCH, LEAF (LIMIT SWITCH)	
SW632	1-554-938-11	SWITCH, LEAF (GEAR SWITCH)	

4-4. MD SECTION (2) (MG-300F-B)



Ref. No.	Part No.	Description	Remark
* 351	X-3351-426-1	LEVER (D DETECTION R2) ASSY	
352	3-351-447-02	SPRING (JOINT F), TENSION	
353	3-578-224-00	WASHER	
354	3-351-446-01	SPRING (JOINT R), TENSION	
355	3-351-496-01	GUIDE (DISK 2)	
356	3-351-432-01	GEAR (DS)	
* 357	X-3351-425-1	LEVER (D DETECTION L2) ASSY	
* 358	X-3351-424-1	CHASSIS (T2) ASSY	
* 359	3-351-489-02	JOINT (F2)	
360	3-351-448-01	SPRING (LOCK LEVER), TENSION	

4-5. MD SECTION (3) (MG-300F-B)



Ref. No.	Part No.	Description	Remark
* 401	2-643-407-01	PLATE, SWITCH	
* 402	X-2641-534-1	LEVER (A) ASSY, LOCK	
* 403	2-641-582-01	LEVER (B), LOCK	
* 404	2-643-414-02	GEAR (B), LOCK	
* 405	X-2625-446-1	CHASSIS ASSY (F), MAIN	
* 406	2-643-402-01	RETAINER (B), SHAFT	
* 407	2-643-403-01	RETAINER, FEED SCREW	
* 408	2-643-401-01	RETAINER (A), SHAFT	
* 409	2-640-632-01	SHAFT, GUIDE	
* 410	X-2641-535-2	CHASSIS ASSY, SUB	
* 411	2-643-413-02	GEAR (A), LOCK	
* 412	2-643-405-01	WHEEL, WORM	
* 413	2-641-599-05	GEAR (C), GEAR	
* 414	2-641-595-02	SPRING, TENSION	
415	2-643-420-01	SPRING	
416	2-625-272-02	NUT, FEED	
417	3-321-813-01	WASHER, COTTER POLYETHYLENE	
* 418	X-2641-546-1	LEVER (C) ASSY, LOCK	
* 419	2-643-406-02	LEVER, SELECTION	

Ref. No.	Part No.	Description	Remark
* 420	2-643-410-01	GEAR (E)	
* 421	2-643-409-01	GEAR (D)	
422	2-643-408-02	RETAINER, THRUST	
423	A-4910-184-E	SCREW ASSY, FEED	
* 424	2-643-404-01	SPRING	
* 425	2-640-650-02	STOPPER, RING	
* 426	2-643-418-01	RING, CENTER	
* 427	2-640-617-02	SPRING, COMPRESSION	
428	X-2641-545-1	TURNTABLE ASSY (A)	
436	2-643-423-01	SCREW, SP	
⚠926	8-848-124-11	DEVICE, OPTICAL KSS-168A (RP)	
M901	A-4910-183-A	MOTOR ASSY, SL (SLED)	
M902	1-541-448-41	MOTOR (SPINDLE)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the part specified in the diagrams or the components used on the set.
- -XX,-X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case,u : μ ,for example :
  uA... : μA..., uPA... : μPA...,
  uPB... : μPB..., uPC... : μPC...,
  uPD... : μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
*	9-905-751-01	KEY BOARD, COMPLETE			
		**********			
	9-901-824-01	LAMP (7V/75mA)			
	9-904-035-01	CABLE, FLEXIBLE (30P)			
	9-901-826-01	SWITCH, TACT			
	9-904-031-01	CHIP RESISTOR 150Ω			
	9-904-032-01	CHIP RESISTOR 0Ω			
**********					
*	A-3295-585-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C105	1-126-157-11	ELECT	10uF	20%	16V
C106	1-124-967-11	ELECT	10uF	20%	10V
C107	1-124-967-11	ELECT	10uF	20%	10V
C108	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C109	1-126-163-11	ELECT	4.7uF	20%	50V
C110	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C201	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C205	1-126-157-11	ELECT	10uF	20%	16V
C206	1-124-967-11	ELECT	10uF	20%	10V
C207	1-124-967-11	ELECT	10uF	20%	10V
C208	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C209	1-126-163-11	ELECT	4.7uF	20%	50V
C210	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C301	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C302	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C303	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C304	1-125-701-11	CAP, DOUBLE LAYER	0.047F		
C305	1-124-443-00	ELECT	100uF	20%	10V
C306	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C307	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remark
C310	1-124-009-11	ELECT	47uF	20%	25V
C311	1-126-163-11	ELECT	4.7uF	20%	50V
C312	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C313	1-128-300-11	ELECT	330uF	20%	16V
C314	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C315	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C316	1-126-233-11	ELECT	22uF	20%	50V
C317	1-128-283-11	ELECT	100uF	20%	6.3V
C318	1-124-472-11	ELECT	470uF	20%	10V
C319	1-126-233-11	ELECT	22uF	20%	50V
C320	1-128-300-11	ELECT	330uF	20%	16V
C321	1-124-257-00	ELECT	2.2uF	20%	50V
C322	1-124-257-00	ELECT	2.2uF	20%	50V
C323	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C324	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C325	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C326	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C327	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C328	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C329	1-124-257-00	ELECT	2.2uF	20%	50V
C330	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C331	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C332	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C333	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C401	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C402	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C403	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C701	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C702	1-126-163-11	ELECT	4.7uF	20%	50V
		< JACK >			
* CNJ102	1-506-989-11	PIN, CONNECTOR (PC BOARD) 7P			
CNJ103	1-569-532-11	HOUSING, CONNECTOR 30P			
CNJE5	1-691-447-11	SOCKET, CONNECTOR (PC BOARD)			

MAIN

Ref. No.	Part No.	Description		Remark
		< DIODE >		
D301	8-719-815-85	DIODE	1S1585	
D304	8-719-200-82	DIODE	11ES2	
D307	8-719-911-19	DIODE	1SS119	
D308	8-719-911-19	DIODE	1SS119	
D309	8-719-911-19	DIODE	1SS119	
D310	8-719-200-82	DIODE	11ES2	
D313	8-719-987-86	DIODE	SB01-15CP	
D314	8-719-938-78	DIODE	SB10-05PCP	
D317	8-719-987-86	DIODE	SB01-15CP	
D703	8-719-911-19	DIODE	1SS119	
		< IC >		
IC101	8-759-701-40	IC	NJM3404AM-T1	
IC301	8-759-070-47	IC	uPD75512GF-140-3B9	
IC302	8-759-503-60	IC	S-80740AN-D4-S	
IC303	8-759-503-60	IC	S-80740AN-D4-S	
IC304	8-759-995-27	IC	MB3776APF	
IC401	8-759-999-94	IC	CXD8155Q	
IC402	8-759-185-08	IC	MSL912ARS	
IC403	8-759-185-08	IC	MSL912ARS	
IC701	8-759-070-64	IC	CXK1024M-ME	
		< COIL >		
L301	1-424-507-11	COIL, CHOKE	1.4mH	
L302	1-402-786-21	COIL, CHOKE	100uH	
L303	1-410-509-11	INDUCTOR	10uH	
		< TRANSISTOR >		
Q101	8-729-920-31	TRANSISTOR	DTC343TK	
Q201	8-729-920-31	TRANSISTOR	DTC343TK	
Q301	8-729-106-68	TRANSISTOR	2SD1615A-GP	
Q302	8-729-106-60	TRANSISTOR	2SB1115A	
Q303	8-729-421-22	TRANSISTOR	UN2211	
Q304	8-729-424-18	TRANSISTOR	UN2113	
Q305	8-729-011-47	TRANSISTOR	XN4311	
Q306	8-729-424-08	TRANSISTOR	UN2111	
Q307	8-729-822-84	TRANSISTOR	2SB1202FAST	
Q308	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q309	8-729-230-49	TRANSISTOR	2SC2712-YG	
Q310	8-729-422-37	TRANSISTOR	2SB709A-R	
Q311	8-729-402-13	TRANSISTOR	XN1501	
Q313	8-729-022-34	TRANSISTOR	2SD1804T-TL	
Q314	8-729-106-68	TRANSISTOR	2SD1615A-GP	
Q315	8-729-421-22	TRANSISTOR	UN2211	
Q316	8-729-421-22	TRANSISTOR	UN2211	
Q317	8-729-807-35	TRANSISTOR	2SB1123-T	
Q318	8-729-421-22	TRANSISTOR	UN2211	
Q401	8-729-011-47	TRANSISTOR	XN4311	
Q402	8-729-011-47	TRANSISTOR	XN4311	
Q403	8-729-011-47	TRANSISTOR	XN4311	
Q404	8-729-011-47	TRANSISTOR	XN4311	
Q701	8-729-421-22	TRANSISTOR	UN2211	
Q702	8-729-422-37	TRANSISTOR	2SB709A-R	
		< RESISTOR >		
R101	1-218-733-11	METAL CHIP	51K 0.50% 1/16W	
R102	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R103	1-218-733-11	METAL CHIP	51K 0.50% 1/16W	
R104	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R105	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R110	1-216-081-00	METAL CHIP	22K 5% 1/10W	
R111	1-216-009-00	METAL CHIP	22 5% 1/10W	
R112	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R113	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R201	1-218-733-11	METAL CHIP	51K 0.50% 1/16W	
R202	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R203	1-218-733-11	METAL CHIP	51K 0.50% 1/16W	
R204	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R205	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R210	1-216-081-00	METAL CHIP	22K 5% 1/10W	
R211	1-216-009-00	METAL CHIP	22 5% 1/10W	
R212	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R213	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R301	1-216-091-00	METAL CHIP	56K 5% 1/10W	
R302	1-216-091-00	METAL CHIP	56K 5% 1/10W	
R303	1-216-081-00	METAL CHIP	22K 5% 1/10W	
R304	1-216-009-00	METAL CHIP	22 5% 1/10W	
R305	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R312	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	
R313	1-216-077-00	METAL CHIP	15K 5% 1/10W	
R314	1-216-077-00	METAL CHIP	15K 5% 1/10W	
R315	1-216-077-00	METAL CHIP	15K 5% 1/10W	
R316	1-216-077-00	METAL CHIP	15K 5% 1/10W	
R317	1-216-081-00	METAL CHIP	22K 5% 1/10W	
R318	1-216-073-00	METAL CHIP	10K 5% 1/10W	
R319	1-216-049-00	METAL CHIP	1K 5% 1/10W	
R320	1-216-089-91	METAL GLAZE	47K 5% 1/10W	
R321	1-216-081-00	METAL CHIP	22K 5% 1/10W	
R322	1-216-049-00	METAL CHIP	1K 5% 1/10W	
R323	1-216-077-00	METAL CHIP	15K 5% 1/10W	
R324	1-216-033-00	METAL CHIP	220 5% 1/10W	
R325	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	
R326	1-216-089-91	METAL GLAZE	47K 5% 1/10W	
R327	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	
R328	1-216-073-00	METAL CHIP	10K 5% 1/10W	
R329	1-216-097-00	METAL CHIP	100K 5% 1/10W	
R330	1-216-093-00	METAL CHIP	68K 5% 1/10W	
R331	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	

Ref.No.	Part No.	Description			Remark
R332	1-216-009-00	METAL CHIP	22	5%	1/10W
R333	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R335	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R336	1-216-037-00	METAL CHIP	330	5%	1/10W
R337	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R338	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R339	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R340	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R341	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R342	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R343	1-216-054-00	METAL GLAZE	1.6K	5%	1/10W
R344	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R345	1-218-722-11	METAL CHIP	18K	0.50%	1/16W
R346	1-218-699-11	METAL CHIP	2K	0.50%	1/16W
R347	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R348	1-216-077-00	METAL CHIP	15K	5%	1/10W
R349	1-216-077-00	METAL CHIP	15K	5%	1/10W
R350	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R351	1-216-073-00	METAL CHIP	10K	5%	1/10W
R352	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R353	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R354	1-216-073-00	METAL CHIP	10K	5%	1/10W
R356	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R357	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R358	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R403	1-216-073-00	METAL CHIP	10K	5%	1/10W
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-073-00	METAL CHIP	10K	5%	1/10W
R407	1-216-073-00	METAL CHIP	10K	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W
R409	1-216-073-00	METAL CHIP	10K	5%	1/10W
R410	1-216-073-00	METAL CHIP	10K	5%	1/10W
R411	1-216-073-00	METAL CHIP	10K	5%	1/10W
R412	1-216-073-00	METAL CHIP	10K	5%	1/10W
R413	1-216-073-00	METAL CHIP	10K	5%	1/10W
R414	1-216-073-00	METAL CHIP	10K	5%	1/10W
R415	1-216-073-00	METAL CHIP	10K	5%	1/10W
R416	1-216-073-00	METAL CHIP	10K	5%	1/10W
R417	1-216-073-00	METAL CHIP	10K	5%	1/10W
R418	1-216-073-00	METAL CHIP	10K	5%	1/10W
R419	1-216-073-00	METAL CHIP	10K	5%	1/10W
R420	1-216-073-00	METAL CHIP	10K	5%	1/10W
R421	1-216-073-00	METAL CHIP	10K	5%	1/10W
R422	1-249-402-11	CARBON	56	5%	1/4W F
R423	1-249-402-11	CARBON	56	5%	1/4W F
R701	1-216-081-00	METAL CHIP	22K	5%	1/10W
R702	1-216-049-00	METAL CHIP	1K	5%	1/10W
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W
R704	1-216-081-00	METAL CHIP	22K	5%	1/10W
R705	1-216-049-00	METAL CHIP	1K	5%	1/10W
R706	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R707	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R708	1-216-097-00	METAL CHIP	100K	5%	1/10W
R709	1-216-073-00	METAL CHIP	10K	5%	1/10W
R801	1-216-009-00	METAL CHIP	22	5%	1/10W
R802	1-216-009-00	METAL CHIP	22	5%	1/10W

< RELAY >

RY301	1-515-614-11	RELAY

< TRANSFORMER >

T301	1-423-349-11	TRANSFORMER, DC-DC CONVERTER

< VARISTOR >

VDR301	1-807-601-11	VARISTOR, CERAMIC

< VIBRATOR >

X301	1-567-775-11	VIBRATOR, CERAMIC (4.19MHz)

< ZENER DIODE >

ZD302	8-719-109-84	DIODE RD5.1ES-B1
ZD303	8-719-109-90	DIODE RD5.6ESB3
ZD305	8-719-109-84	DIODE RD5.1ES-B1
ZD306	8-719-110-41	DIODE RD15ES-B2
ZD312	8-719-109-48	DIODE RD43EBTN
ZD315	8-719-110-48	DIODE RD18ES-B1
ZD316	8-719-110-63	DIODE RD24ES-B3
ZD701	8-719-109-84	DIODE RD5.1ES-B1
ZD702	8-719-109-84	DIODE RD5.1ES-B1

****

*	1-645-727-11	MD CONNECTOR BOARD
		**********
	1-645-761-11	RELAY FLEXIBLE BOARD

< CAPACITOR >

C705	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C706	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C707	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C708	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C709	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C710	1-164-337-11	CERAMIC CHIP	2.2uF		16V

< CONNECTOR >

* CNP601	1-566-012-11	PIN, CONNECTOR (PC BOARD) 15P

MD CONNECTOR | MD LED | MD MAIN

Ref.No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q701	8-729-820-47	TRANSISTOR	2SB1202FAT		
Q702	8-729-402-13	TRANSISTOR	XN1501		
		< RESISTOR >			
R701	1-216-296-00	METAL CHIP	0	5%	1/8W
R702	1-216-296-00	METAL CHIP	0	5%	1/8W
R703	1-216-296-00	METAL CHIP	0	5%	1/8W
R704	1-216-296-00	METAL CHIP	0	5%	1/8W
R706	1-216-805-11	METAL CHIP	47	5%	1/16W
R707	1-218-295-11	METAL CHIP	5.6K	0.50%	1/16W
R708	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R709	1-216-184-00	METAL GLAZE	270	5%	1/8W
R710	1-216-833-11	METAL CHIP	10K	5%	1/16W
R711	1-216-833-11	METAL CHIP	10K	5%	1/16W
R712	1-216-833-11	METAL CHIP	10K	5%	1/16W
R713	1-216-833-11	METAL CHIP	10K	5%	1/16W
**********					
	1-645-729-11	MD LED BOARD			
		**********			
		< DIODE >			
D631	8-719-404-27	DIODE	LN1261C		
D632	8-719-404-27	DIODE	LN1261C		
D633	8-719-404-27	DIODE	LN1261C		
		< RESISTOR >			
R631	1-216-184-00	METAL GLAZE	270	5%	1/8W
**********					
	A-3295-184-A	MD MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C102	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C103	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C104	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C105	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-126-591-11	ELECT CHIP	10uF	20%	6.3V
C108	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C109	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C201	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C202	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C203	1-162-949-11	CERAMIC CHIP	47PF	5%	50V
C204	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C205	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref.No.	Part No.	Description			Remark
C207	1-126-591-11	ELECT CHIP	10uF	20%	6.3V
C208	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C209	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C301	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C302	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C303	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C304	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C305	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C306	1-164-346-11	CERAMIC CHIP	1uF		16V
C307	1-164-346-11	CERAMIC CHIP	1uF		16V
C308	1-164-346-11	CERAMIC CHIP	1uF		16V
C311	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C313	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C314	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C351	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C356	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C406	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C407	1-164-346-11	CERAMIC CHIP	1uF		16V
C408	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C409	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C410	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C411	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C414	1-164-346-11	CERAMIC CHIP	1uF		16V
C420	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C421	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C501	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C503	1-135-161-21	TANTALUM CHIP	22uF	10%	10V
C504	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C505	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C506	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C508	1-164-346-11	CERAMIC CHIP	1uF		16V
C509	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C512	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C513	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C514	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C515	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C517	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C519	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C520	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C521	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C522	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C523	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C524	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C525	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C526	1-162-568-11	CERAMIC CHIP	0.33uF	10%	16V
C527	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C528	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C529	1-162-919-11	CERAMIC CHIP	22PF	5%	50V

Ref.No.	Part No.	Description			Remark
C530	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C531	1-164-471-11	CERAMIC CHIP	680PF	5%	50V
C536	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C537	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C541	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C542	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C543	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C550	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C561	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C598	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C610	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C651	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C652	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
		< JACK >			
CNJ1	1-568-142-11	HOUSING, CONNECTOR 13P			
* CNJ2	1-566-188-11	PIN, CONNECTOR (PC BOARD) 9P			
CNJ3	1-568-141-11	HOUSING, CONNECTOR 5P			
* CNJ4	1-695-931-21	CONNECTOR, FPC 10P			
* CNJ5	1-695-930-21	CONNECTOR, FPC 16P			
		< DIODE >			
D404	8-719-027-50	DIODE	MA142WK		
D405	8-719-981-59	DIODE	FC805		
D406	8-719-981-59	DIODE	FC805		
D409	8-719-027-50	DIODE	MA142WK		
D410	8-719-027-50	DIODE	MA142WK		
D501	8-719-027-50	DIODE	MA142WK		
D601	8-719-027-50	DIODE	MA142WK		
		< IC >			
IC101	8-759-701-40	IC	NJM3404AM-T1		
IC102	8-759-604-64	IC	M5203FP		
IC201	8-759-701-40	IC	NJM3404AM-T1		
IC202	8-759-604-64	IC	M5203FP		
IC301	8-759-090-80	IC	SM5872BS-ET		
IC303	8-759-150-61	IC	uPC78L05T		
IC401	8-759-057-64	IC	BA6280AF		
IC403	8-759-191-95	IC	BA6398FP-T1		
IC405	8-759-040-83	IC	BA6287F		
IC501	8-752-033-14	IC	CXA1081Q		
IC502	8-752-037-48	IC	CXA1182Q-Z		
IC503	8-752-352-93	IC	CXD2500BQ		
IC601	8-752-845-16	IC	CXP50116-436Q		
		< COIL >			
L301	1-410-381-11	INDUCTOR CHIP	10uH		
L302	1-410-381-11	INDUCTOR CHIP	10uH		
L501	1-410-381-11	INDUCTOR CHIP	10uH		

Ref.No.	Part No.	Description		Remark
		< TRANSISTOR >		
Q301	8-729-015-76	TRANSISTOR	UN5211	
Q302	8-729-106-68	TRANSISTOR	2SD1615A-GP	
Q351	8-729-822-84	TRANSISTOR	2SB1202FAST	
Q352	8-729-106-60	TRANSISTOR	2SB1115A	
Q353	8-729-015-76	TRANSISTOR	UN5211	
Q354	8-729-402-13	TRANSISTOR	XN1501	
Q409	8-729-421-26	TRANSISTOR	UN5216	
Q502	8-729-120-28	TRANSISTOR	2SC1623-L5L6	
Q503	8-729-905-23	TRANSISTOR	2SA1576-R	
Q504	8-729-106-68	TRANSISTOR	2SD1615A-GP	
Q510	8-729-403-17	TRANSISTOR	XN1215	
Q511	8-729-403-17	TRANSISTOR	XN1215	
Q512	8-729-403-17	TRANSISTOR	XN1215	
Q513	8-729-403-17	TRANSISTOR	XN1215	
Q514	8-729-403-17	TRANSISTOR	XN1215	
Q515	8-729-421-26	TRANSISTOR	UN5216	
Q516	8-729-421-26	TRANSISTOR	UN5216	
Q517	8-729-403-17	TRANSISTOR	XN1215	
Q518	8-729-403-45	TRANSISTOR	XN1115	
		< RESISTOR >		
R101	1-216-994-11	METAL CHIP	13K 0.50% 1/16W	
R102	1-216-994-11	METAL CHIP	13K 0.50% 1/16W	
R103	1-218-873-11	METAL CHIP	12K 0.50% 1/16W	
R104	1-218-873-11	METAL CHIP	12K 0.50% 1/16W	
R105	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R106	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R107	1-218-295-11	METAL CHIP	5.6K 0.50% 1/16W	
R108	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	
R109	1-218-295-11	METAL CHIP	5.6K 0.50% 1/16W	
R110	1-216-804-11	METAL CHIP	39 5% 1/16W	
R111	1-216-804-11	METAL CHIP	39 5% 1/16W	
R112	1-216-804-11	METAL CHIP	39 5% 1/16W	
R113	1-218-747-11	METAL CHIP	200K 0.50% 1/16W	
R114	1-216-805-11	METAL CHIP	47 5% 1/16W	
R201	1-216-994-11	METAL CHIP	13K 0.50% 1/16W	
R202	1-216-994-11	METAL CHIP	13K 0.50% 1/16W	
R203	1-218-873-11	METAL CHIP	12K 0.50% 1/16W	
R204	1-218-873-11	METAL CHIP	12K 0.50% 1/16W	
R205	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R206	1-218-723-11	METAL CHIP	20K 0.50% 1/16W	
R207	1-218-295-11	METAL CHIP	5.6K 0.50% 1/16W	
R208	1-216-831-11	METAL CHIP	6.8K 5% 1/16W	
R209	1-218-295-11	METAL CHIP	5.6K 0.50% 1/16W	
R210	1-216-804-11	METAL CHIP	39 5% 1/16W	
R211	1-216-804-11	METAL CHIP	39 5% 1/16W	
R212	1-216-804-11	METAL CHIP	39 5% 1/16W	
R213	1-218-747-11	METAL CHIP	200K 0.50% 1/16W	

MD MAIN

Ref. No.	Part No.	Description			Remark
R214	1-216-805-11	METAL CHIP	47	5%	1/16W
R301	1-216-813-11	METAL CHIP	220	5%	1/16W
R306	1-216-841-11	METAL CHIP	47K	5%	1/16W
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W
R308	1-216-833-11	METAL CHIP	10K	5%	1/16W
R309	1-216-857-11	METAL CHIP	1M	5%	1/16W
R311	1-216-805-11	METAL CHIP	47	5%	1/16W
R350	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R351	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R352	1-216-041-00	METAL CHIP	470	5%	1/10W
R353	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R354	1-216-841-11	METAL CHIP	47K	5%	1/16W
R355	1-216-833-11	METAL CHIP	10K	5%	1/16W
R356	1-216-841-11	METAL CHIP	47K	5%	1/16W
R357	1-216-821-11	METAL CHIP	1K	5%	1/16W
R401	1-216-821-11	METAL CHIP	1K	5%	1/16W
R402	1-216-821-11	METAL CHIP	1K	5%	1/16W
R403	1-216-833-11	METAL CHIP	10K	5%	1/16W
R404	1-216-833-11	METAL CHIP	10K	5%	1/16W
R405	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R406	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R409	1-216-838-11	METAL CHIP	27K	5%	1/16W
R410	1-216-838-11	METAL CHIP	27K	5%	1/16W
R411	1-216-838-11	METAL CHIP	27K	5%	1/16W
R412	1-216-838-11	METAL CHIP	27K	5%	1/16W
R413	1-216-839-11	METAL CHIP	33K	5%	1/16W
R414	1-216-850-11	METAL CHIP	270K	5%	1/16W
R434	1-216-001-00	METAL CHIP	10	5%	1/10W
R500	1-216-839-11	METAL CHIP	33K	5%	1/16W
R501	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R502	1-216-837-11	METAL CHIP	22K	5%	1/16W
R503	1-216-835-11	METAL CHIP	15K	5%	1/16W
R504	1-216-821-11	METAL CHIP	1K	5%	1/16W
R505	1-216-841-11	METAL CHIP	47K	5%	1/16W
R506	1-216-835-11	METAL CHIP	15K	5%	1/16W
R507	1-216-836-11	METAL CHIP	18K	5%	1/16W
R508	1-216-813-11	METAL CHIP	220	5%	1/16W
R509	1-216-001-00	METAL CHIP	10	5%	1/10W
R511	1-216-845-11	METAL CHIP	100K	5%	1/16W
R512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R513	1-216-845-11	METAL CHIP	100K	5%	1/16W
R514	1-216-845-11	METAL CHIP	100K	5%	1/16W
R515	1-216-838-11	METAL CHIP	27K	5%	1/16W
R516	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R517	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R518	1-216-841-11	METAL CHIP	47K	5%	1/16W
R519	1-216-805-11	METAL CHIP	47	5%	1/16W
R520	1-216-848-11	METAL CHIP	180K	5%	1/16W
R523	1-216-843-11	METAL CHIP	68K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R524	1-216-837-11	METAL CHIP	22K	5%	1/16W
R525	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R526	1-216-849-11	METAL CHIP	220K	5%	1/16W
R527	1-216-833-11	METAL CHIP	10K	5%	1/16W
R533	1-216-001-00	METAL CHIP	10	5%	1/10W
R536	1-218-286-11	METAL GLAZE	91	5%	1/16W
R537	1-216-841-11	METAL CHIP	47K	5%	1/16W
R538	1-216-838-11	METAL CHIP	27K	5%	1/16W
R541	1-216-833-11	METAL CHIP	10K	5%	1/16W
R542	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R543	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R544	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R545	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R546	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R547	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R550	1-216-850-11	METAL CHIP	270K	5%	1/16W
R551	1-216-843-11	METAL CHIP	68K	5%	1/16W
R552	1-218-332-11	METAL GLAZE	130K	5%	1/16W
R553	1-216-837-11	METAL CHIP	22K	5%	1/16W
R554	1-216-846-11	METAL CHIP	120K	5%	1/16W
R555	1-216-849-11	METAL CHIP	220K	5%	1/16W
R556	1-216-853-11	METAL CHIP	470K	5%	1/16W
R558	1-216-833-11	METAL CHIP	10K	5%	1/16W
R559	1-216-994-11	METAL GLAZE	13K	5%	1/16W
R560	1-216-839-11	METAL CHIP	33K	5%	1/16W
R561	1-216-815-11	METAL CHIP	330	5%	1/16W
R562	1-216-837-11	METAL CHIP	22K	5%	1/16W
R563	1-216-835-11	METAL CHIP	15K	5%	1/16W
R564	1-216-839-11	METAL CHIP	33K	5%	1/16W
R566	1-216-833-11	METAL CHIP	10K	5%	1/16W
R567	1-216-851-11	METAL CHIP	330K	5%	1/16W
R568	1-216-833-11	METAL CHIP	10K	5%	1/16W
R570	1-216-845-11	METAL CHIP	100K	5%	1/16W
R571	1-216-837-11	METAL CHIP	22K	5%	1/16W
R577	1-216-837-11	METAL CHIP	22K	5%	1/16W
R578	1-216-845-11	METAL CHIP	100K	5%	1/16W
R579	1-216-837-11	METAL CHIP	22K	5%	1/16W
R583	1-216-843-11	METAL CHIP	68K	5%	1/16W
R584	1-216-804-11	METAL CHIP	39	5%	1/16W
R585	1-216-837-11	METAL CHIP	22K	5%	1/16W
R586	1-216-845-11	METAL CHIP	100K	5%	1/16W
R587	1-216-845-11	METAL CHIP	100K	5%	1/16W
R597	1-216-001-00	METAL CHIP	10	5%	1/10W
R598	1-216-833-11	METAL CHIP	10K	5%	1/16W
R601	1-216-857-11	METAL CHIP	1M	5%	1/16W
R602	1-216-841-11	METAL CHIP	47K	5%	1/16W
R603	1-216-833-11	METAL CHIP	10K	5%	1/16W
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W
R605	1-216-833-11	METAL CHIP	10K	5%	1/16W
R606	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R607	1-216-833-11	METAL CHIP	10K	5%	1/16W
R650	1-216-845-11	METAL CHIP	100K	5%	1/16W
R651	1-216-845-11	METAL CHIP	100K	5%	1/16W
R652	1-216-845-11	METAL CHIP	100K	5%	1/16W
R653	1-216-845-11	METAL CHIP	100K	5%	1/16W
R654	1-216-837-11	METAL CHIP	22K	5%	1/16W
R655	1-216-837-11	METAL CHIP	22K	5%	1/16W
R666	1-216-833-11	METAL CHIP	10K	5%	1/16W
R667	1-216-833-11	METAL CHIP	10K	5%	1/16W
R668	1-216-833-11	METAL CHIP	10K	5%	1/16W
R669	1-216-833-11	METAL CHIP	10K	5%	1/16W
R670	1-216-833-11	METAL CHIP	10K	5%	1/16W
R671	1-216-833-11	METAL CHIP	10K	5%	1/16W
R672	1-216-833-11	METAL CHIP	10K	5%	1/16W
R673	1-216-833-11	METAL CHIP	10K	5%	1/16W
		< THERMISTOR >			
TH501	1-808-656-11	THERMISTOR			
TH502	1-808-656-11	THERMISTOR			
		< VIBRATOR >			
X301	1-579-707-21	VIBRATOR, CRYSTAL (16.934MHz)			
X601	1-579-857-21	OSCILLATOR, CERAMIC (4.19MHz)			
		< ZENER DIODE >			
ZD505	8-719-106-31	DIODE RD8.2M-B1			
**********					
*	1-645-728-11	MD SENSOR BOARD			
		**********			
	1-629-581-11	SENSOR FILEXIBLE BOARD			
		< TRANSISTOR >			
Q621	8-729-017-82	TRANSISTOR PN147-LP-R			
Q622	8-729-017-82	TRANSISTOR PN147-LP-R			
Q623	8-729-017-82	TRANSISTOR PN147-LP-R			
		< SWITCH >			
SW621	1-571-754-11	SWITCH, PUSH (1 KEY)			
SW622	1-571-754-11	SWITCH, PUSH (1 KEY)			
**********					
*	1-645-733-11	POWER BOARD			
		**********			
		< JACK >			
CNJE6	1-691-448-11	SOCKET, CONNECTOR (PC BOARD)			
**********					

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
⚠926	8-848-124-11	DEVICE, OPTICAL KSS-168A (RP)	
M901	A-4910-183-A	MOTOR ASSY, SL (SLED)	
M902	1-541-448-41	MOTOR (SPINDLE)	
M903	A-3249-535-A	GEAR (A) ASSY (LOADING)	
PM901	1-454-461-11	SOLENOID, PLUNGER	
SW631	1-554-938-11	SWITCH, LEAF (LIMIT SWITCH)	
SW632	1-554-938-11	SWITCH, LEAF (GEAR SWITCH)	
F101	1-576-234-11	FUSE (MINI BLADE TYPE) 4A	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-348-545-01	LABEL (WARRANTY)	
*	3-348-576-02	SHEET, PROTECTION	
*	3-366-113-01	CUSHION (UPPER)	
*	3-366-114-01	CUSHION (LOWER)	
*	3-366-116-01	PROTECTOR	
*	3-389-636-01	CARTON, 4 SETS	
**********			

HARDWARE LIST

#1	7-621-559-30	SCREW +K 2.6X5
#2	7-621-770-67	SCREW +PTT 2.6X6 (S)
#3	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT
#4	7-685-861-01	SCREW +BVTT 2.6X5 (S)
#5	7-621-772-08	SCREW +B 2X3
#6	7-627-553-28	SCREW, PRECISION +P 2X2.5
#7	7-624-104-04	STOP RING 2.0, TYPE -E
#8	7-627-553-37	SCREW, PRECISION +P 2X3
#9	7-627-552-18	SCREW, PRECISION +P 1.7X1.6
#10	7-627-850-57	SCREW, PRECISION +P 1.4X3.5
#11	7-621-771-06	SCREW +B 2X5
#13	7-627-554-18	SCREW, PRECISION +P 2X3.5 TYPE1
#14	7-624-106-04	STOP RING 3.0, TYPE -E
#15	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3
#16	7-627-552-08	SCREW, PRECISION +P 1.7X2.5
#17	7-627-451-17	SCREW, PRECISION +K 1.4X2.5
#19	7-627-852-17	SCREW +P 1.7X4
#20	7-627-451-57	SCREW, PRECISION +K 1.4X4

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-957-338-31

Sony Corporation
Mobile Electronics Group

English
93J06002-1
Printed in Japan
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Published by Audio Sector Quality Assurance Dept.